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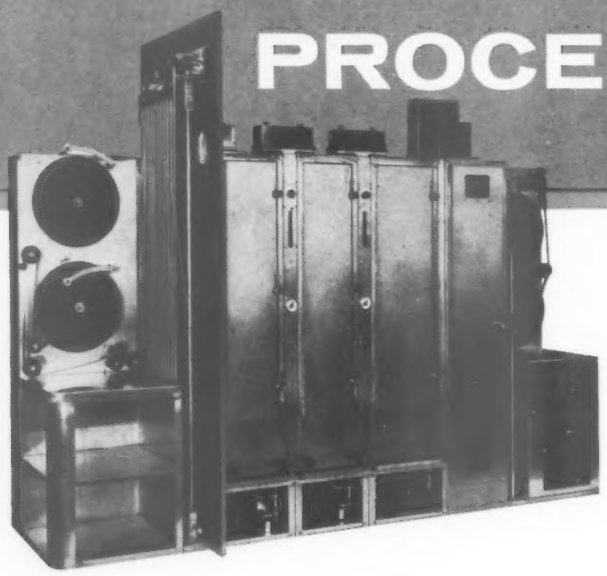

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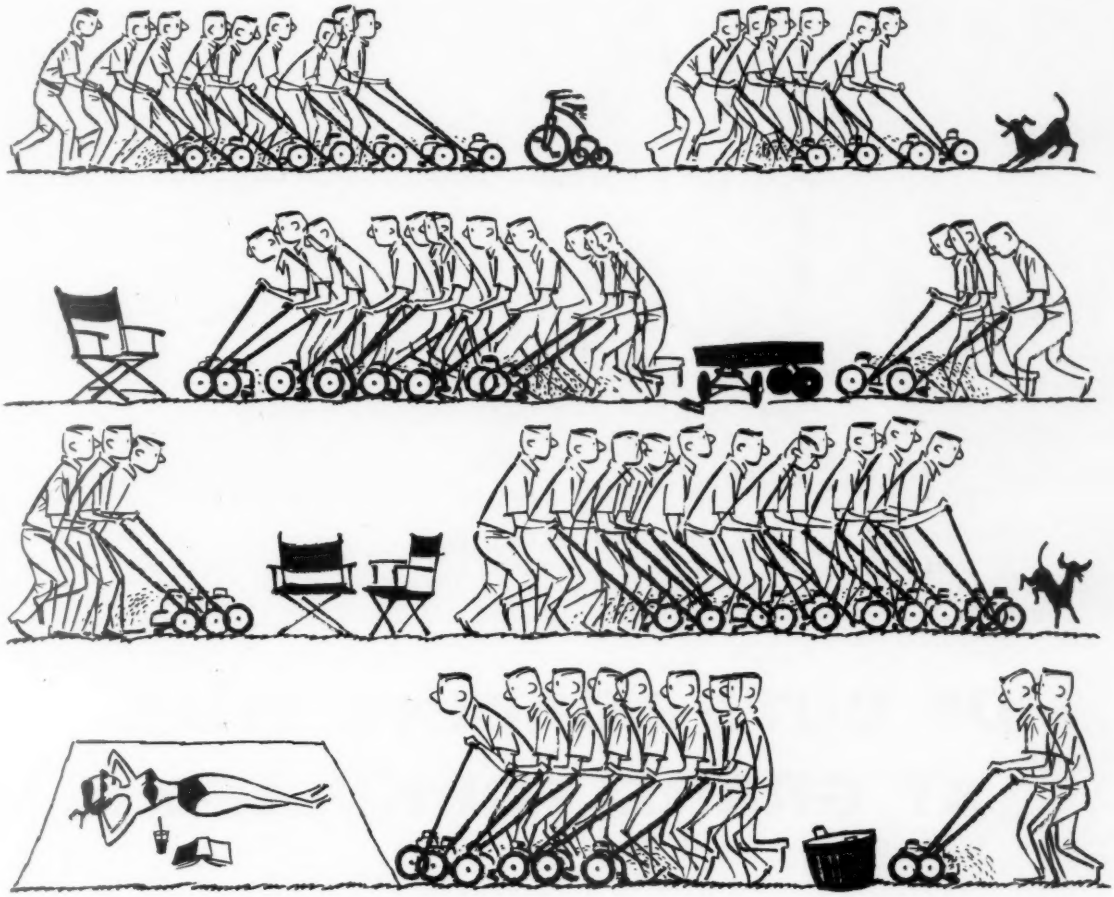

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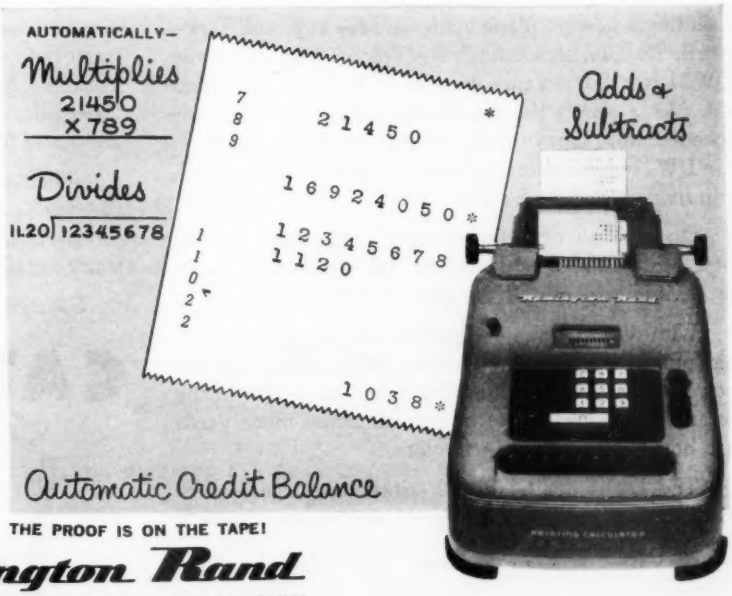

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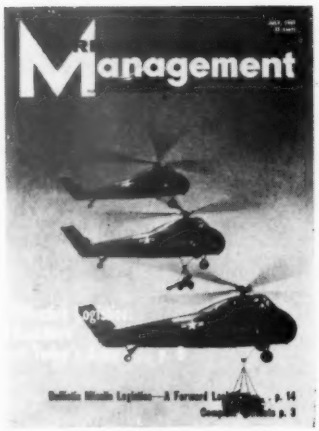

ON THE COVER:

Modern Army logistics requires the most efficient, effective supply lines. This month's cover depicts one of the techniques used to obtain them, close support helicopter airlift. For more on Army logistics problems see page 5.

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ARMED FORCES MANAGEMENT **Volume 3—No. 10**
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Featured This Month

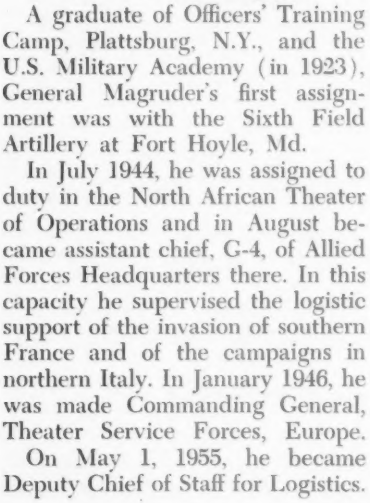
Army Logistics is featured this month. Chief of Staff for Logistics is

Lt. Gen. C. B. Magruder

A graduate of Officers' Training Camp, Plattsburg, N.Y., and the U.S. Military Academy (in 1923), General Magruder's first assignment was with the Sixth Field Artillery at Fort Hoyle, Md.

In July 1944, he was assigned to duty in the North African Theater of Operations and in August became assistant chief, G-4, of Allied Forces Headquarters there. In this capacity he supervised the logistic support of the invasion of southern France and of the campaigns in northern Italy. In January 1946, he was made Commanding General, Theater Service Forces, Europe.

On May 1, 1955, he became Deputy Chief of Staff for Logistics.



Admiral Felix B. Stump

Having a well rounded personality is a vital qualification for any job and especially if the job entails having command over all U. S. ground, sea, and air forces in the Pacific and Orient.

No one has better qualifications than Admiral Felix B. Stump, Commander in Chief Pacific and U. S. Pacific Fleet.

Those who have worked for him say these are things you should always remember: Don't be late for appointments; don't try to bluff him; and never tell a shady story in the presence of a woman.

Felix Stump was born in Parkersburg, West Virginia, December 15, 1894. He was graduated from the Naval Academy in March, 1917 and passed along the ranks until his promotion to Admiral on June 27, 1953.

A naval officer once made the statement about Stump: "He's rough and brusque but he's always considerate." "When the Admiral wants something, he asks the first time with humility," one officer says. "This humbleness often fools people and at first they might try to brush him off. They soon learn that when he wants something he's going to get it."

The subject he feels most deeply on is the United States. He once remarked to a newsman:

"Those Americans who live on the French Riviera and say 'how can you stand it back there in the U. S.,' ought to give up their citizenship."

One thing that makes the Admiral mad is when he hears of people trying to gouge on the United States. He once said that any group of people receiving American protection and financial assistance should have to do like the Average American: "Root hog or die."

Stump has a firm mind when it comes to fighting Communists. He has said, "Communism must be fought with ideas as well as explosives. Many Asians are neutral in the cold war. We must let them know that we are out here to help them be independent, and that we don't want anything except their friendship."

Major Gen. Wm. F. McKee, USAF

William F. McKee was born at Chilhowie, Virginia, October 17, 1906. He was graduated from the U.S. Military Academy at West Point, N.Y., and commissioned a second lieutenant in the Coast Artillery Corps of the Regular Army June 13, 1929.

His first assignment upon graduation was with the 13th Coast Artillery at Fort Barrancas, Florida.

In 1939 he was ordered to foreign duty at Fort Buchanan, Puerto Rico, where he became Battery Commander and later Commanding Officer of the 66th Coast Artillery, transferring with that organization to Borinquen Field, Puerto Rico. Later he became Executive Officer of the Caribbean Interceptor Command under Major General Follett Bradley.

In October 1941, he returned to the United States for assignment to the 71st Coast Artillery at Fort Story, Virginia, as Battalion Commander and Regimental Adjutant of the First Battalion. He later performed the same duties when his division moved to the Naval Operating Base at Norfolk, Va.

In January 1942, he was assigned to Hqs Army Air Forces and was later appointed Chief of the Anti-Aircraft and Airdrome Defense Section and Anti-Aircraft Artillery Division. Shortly thereafter, he became Executive Officer for the Directorate of Air Defense.

In November 1943, he became Deputy Assistant Chief of Air Staff for Operations, Commitments and Requirements, which corresponded roughly to the present office of the Deputy Chief of Staff, Operations.

Effective Logistics: Backbone of Today's Army

A great deal of national attention has been focused in recent years on the application of civilian business management principles and practices to the conduct of the Army's logistics operations. Consequently, the premise that business management is something new to the Army has gained some measure of credence in the mind of the public. Nothing could be farther from the truth . . .

MANY MANAGEMENT problems are intrinsic to Army logistics. They were created there by the very nature of the Army's life-or-death mission, the ever-increasing complexity of its responsibilities, operations, and equipment, and the world-wide deployment of its forces. Within the last decade and a half the development of nuclear weapons and appropriate carriers by the United States and subsequently by the Soviet Union has multiplied Army logistics problems many-fold. They have required a broad reorientation to align logistics with radically new tactical doctrine. Only by creating and utilizing scientific management tools has the Army through the years been able to cope with these problems, which are many times more massive and momentous than any faced by the largest private corporation.

A number of management devices which private industry has perfected to produce greater profits can be and are being used by the Army to generate greater efficiency and economy in its far-flung operations, and what is most important, to enhance its combat capability. On the other hand, many of the management concepts and techniques developed by the Army to make possible the effective administration of its vast and constantly growing logistics system have been adopted by private industry and are being used today to its great advantage.

Based on information supplied by the office of General C. B. Magruder, Deputy Chief of Staff for Logistics, U.S. Army.

In any discussion of the interchange of methods and techniques between the Army and industry it is important to bear in mind points of basic *dissimilarity* between the Army and private industry rather than the points of similarity which are more frequently stressed.

First and foremost, the profit incentive is the motivating force of private industry, and business success is measured in terms of tangible profits. This incentive, of course, is wholly lacking in the Army; the Army's success can be measured only in terms of intangible national security. Army management, like business management, deals with money, goods, and services, but with a radically different end in view.

In the final analysis, success in war will depend upon effective logistics support, and too much is at stake for the Army to allow any principle or practice—no matter how good it might be under other circumstances—to stand in the way of preparedness for any eventuality. Any technique of management has validity for the Army only as it contributes to the Army's ability to provide adequately for the defense of America. In every case its methods must be precisely tailored to its mission.

How the Army "Balances the Books"

Both industry and the Army can balance their books at the end of the year and arrive at a financial accounting. In the case of industry, this will provide a measure of accomplishment of its management. However, a final evaluation of the achievement of Army management could only be made on the field of battle—*yet an army's value is equally great, if not greater, if it is able to prevent the outbreak of war, and therefore does not have to fight at all.*

Despite such fundamental dissimilarities, which make some business policies clearly inapplicable to the Army, and vice versa, a majority of management principles have common validity.

Such tools of management as automatic data processing systems, industrial fund organization, and engineered time standards, which heretofore have been much more generally employed and highly developed by business than by the Army, are examples of devices which the Army has adopted and is now using on a major scale. On the other side of the coin, the Army's list of "firsts" in scientific management principles which have been or are being adopted by private industry is an impressive one.

For example, the line and staff principle—the best method that has yet been devised for exerting effective control over a vast organization—was developed by the Army, and has been widely copied by industry. In its pure form it is still most effectively used in the Army, where it is part of every officer's heritage.

Another classic example of a basic Army management principle which has been transplanted to the business field is the concept that the relationship between a senior and a subordinate is properly based upon a clear-cut assignment of mission, allocation of adequate means, and control of performance by evaluation of results rather than checking on details. This concept has not been changed in essence by restatement in the business terminology of "responsibility, authority, and accountability."

However, one of the greatest contributions of the Army to private business management is the forward planning aspects of the command concept. In order to be ready for any eventuality, the Army must think in terms of what conditions it will face years hence, and what will be required to cope with them. It must visualize *now* what weapons and equipment, and in what

quantities, it must have in order to carry out its mission five or ten years from now.

One of the fundamental necessities for the proper functioning of a logistical system is the sound determination of future requirements—and "good" requirements can result only from realistic and properly phased advance planning. When we consider that it takes an average of five years from the development of a working prototype of a new weapon or major item of equipment to the initiation of quantity production—and two more years on top of that to equip our forces and establish essential reserves—it is readily apparent why the dynamic "forward look" is so vital. Today is the final deadline for decisions upon which will depend the success of our armies many years from now.

Business is becoming increasingly interested in this kind of long-range planning, in which the Army has been engaged for half a century—since the Army general staff was established through the efforts of farsighted Elihu Root. Only recently a number of the largest corporations have "freed up" some of their best and highest paid executives to plan exclusively for the future—to establish clear objectives far in advance of current operations.

No longer is big business content to trust its fortunes to a policy of day-to-day opportunism. Thus is business management taking another leaf from the Army's book, and more and more embracing the fundamental doctrine of Army command – lifting its eyes from the ground underfoot to the far horizon.

Nine Management Techniques Now In Use

With this background, let us take a quick look at some major management techniques and devices being used by the Army to insure the utmost efficiency, economy, and preparedness in its vast, global logistics operations.

1—

The Army Command Management System is basically a system for managing non-tactical installations and organizations in accordance with the traditional military concept that a commander should be assigned a specific mission, provided with all the means required to perform it, and held responsible to the assigning authority for its execution. Programming, budgeting, accounting, and reporting are all completely integrated, and funds are supplied as far as possible from a single source. The commander has control of every phase of the operation of his installation, and he is afforded the opportunity to exercise considerable individual initiative in carrying out the approved program.

2—

The Industrial Fund System is fundamentally similar to the Command Management System with the exception of the manner in which installations and activities are financed. An installation operating under the Command Management System is financed directly from appropriations, while an installation operating under the Industrial Fund System has working capital, which is reimbursed through a transfer of funds from the agencies which the installation serves—in the same manner as a business replenishes its capital from the sale of its goods or services to customers.

The Industrial Fund System is a management device to assist installation commanders to evaluate more effectively actual operations against approved programs and scheduled workloads and furnishes data to control cost, performance and operations to keep them in balance.

At the present time 95 logistic installations – including manufacturing arsenals, rebuild shops, ports, hospitals, depots, and laboratories—are operating under one or the other of these systems. These installations are comparable to the decentralized, independent divisions of large modern corporations.

3—

The Stock Fund is a funding procedure which permits the Army to employ private business methods. A stock fund is a working capital, or revolving fund, utilized for the control and financing of consumption-type supply items for which there is recurring demand. It is designed to permit handling inventories of such items on a replacement basis, much as a private distributor replaces stocks depleted by sales with new stocks bought from the sales proceeds.

For example, the Army Stock Fund has ten separate divisions, or "corporations," which buy and hold items in various categories and literally sell them to using agencies as needed, with payment in the form of transfers to the stock fund from the agencies' appropriations. This system affords inventory managers great flexibility in the use of funds to maintain the most economical stock level, closely related to anticipated sales—just as is the case in private business.

4—

Financial Inventory Accounting for all bulk stocks—requiring inventory records to be maintained and reported in dollar values as well as number of items—was instituted in the Army logistics field well over two years ago. The dollar is the only practical common denominator for the almost one million line items of Army property. Because of dollar accounting, efficient management and control of this huge inventory is greatly simplified, and a realistic basis is provided for sound top management decisions in line with the best industrial practice.

Industrial Engineering techniques are employed within Army logistic activities and installations in the areas of plant and building layout, process and production design, and material handling, in order to secure maximum efficiency in operation. Industrial engineering management practices are incorporated or provided for as ultimate objectives in the Command Management and Industrial Fund Systems for the internal management of these activities and installations. These include systems of production and work planning and control, material control, tool and equipment control, quality control, and cost control.

The standards essential to the proper operation of these management control systems are developed on a self-initiated basis within each non-tactical installation with regard to manpower (which is the

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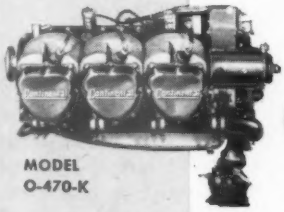

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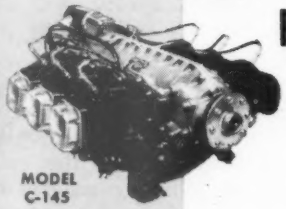

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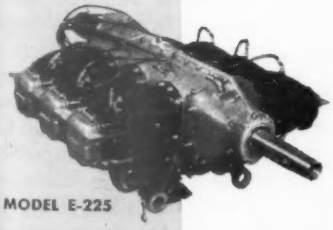

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biggest factor in operating efficiency) materials, tools and equipment, quality, and costs. Some engineered standards work has been under way since 1948, and programs are under way in the Army Technical Services, requiring the development and use of engineered time performance standards where their rise is feasible and economical. Engineered standards are developed by professional, standard analysts through the use of stop-watch timing, predetermined time systems, standard data or various statistical techniques. Before such standards are initiated, however, management, labor, and all others concerned are thoroughly oriented and "sold" on them.

5—

Automatic Data Processing Systems are handling a constantly increasing number of vital logistics jobs. The Army has recognized that changing concepts of war demand the flexibility they provide, the accurate and up-to-date information they place at the finger-tips of management at the moment it is required, and the maximum rapidity of service to troop units they help to make possible.

Automatic processing systems are now making readily available invaluable data previously unobtainable on a practical basis because of the excessive time and manpower which would have been necessary to generate it—for example, the mobilization requirements for secondary elements, which hitherto have been only roughly estimated, but can now be closely computed.

Savings in administrative overhead are impressive because a great volume of detailed work which in the past has been performed by people can now be done by machines. It was the Army which developed the first large-scale, high speed electronic computer, and the Army is forging ahead at an accelerated pace in the vanguard of users of all types of electronic computing and processing equipment—most modern of management aids—in order to further increase the effectiveness of its logistics.

6—

Operations Research in all areas is consistently developing management improvements, none more striking than Project MASS (Modern Army Supply System), which puts automatic data processing and electronic communications to work to permit the speedy re-supply of a field army overseas directly from depots in the United States.

As utilized now in prototype in the spare parts re-supply of the Seventh Army in Europe, a punch card requisition for a given part is fed into transceiver transmission equipment and almost instantaneously checked against all stock records throughout the Seventh Army area. If the part is not available there, the requisition is flashed to New York by radio transceiver and checked against stockage in the United States.

When the requisitioned item is located—perhaps within minutes—it is promptly loaded for shipment to Germany either by surface ship, or air transport if the urgency of the need so dictates. The use of this system has permitted stockage of spare parts in Germany to be cut by more than 85 percent without any reduction of maintenance effectiveness. This obviously has tremendous significance all along the line, not only in terms of supply economy, but also in terms of drastically reduced supply vulnerability under wartime conditions.

7—

Linear Programming techniques are being fully exploited in conjunction with automatic data processing systems to correlate all the variables involved in logistics programs—such as the selection of bidders, relative costs, routes, methods of transportation, dispersal sites, and so on—and work out a formula for the optimum combination of elements which will enable the Army to accomplish a given logistics mission with minimum expenditure of time, money, and effort.

8—

The Line of Balance Concept is employed to insure the proper phasing of all variable lead-time elements of a program in order to achieve a predetermined time-accomplishment goal. It permits ready identification of areas in which over- or under-emphasis, or other factors, may be throwing the program out of line, and facilitates prompt decisions on effective corrective action.

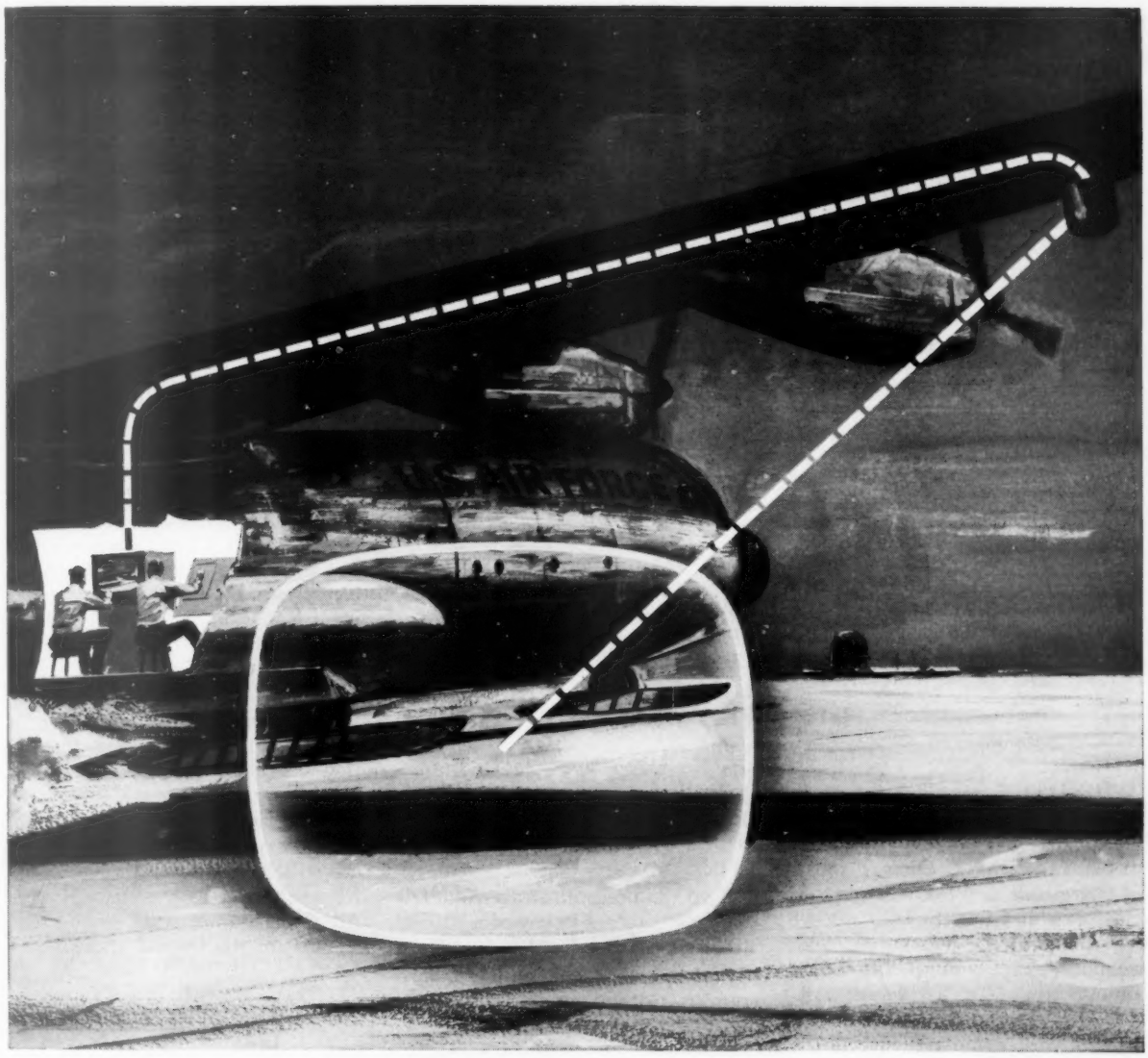
9—

Finally, a *Communications Network*, utilizing the most advanced equipment for that fast, accurate, and virtually automatic interchange of information in large volume, binds together the various elements of the Army's logistics system, which is similarly linked to the tactical structure it supports. Thus management has the means by which it can exert constant, positive, and flexible control over all phases of logistical operations without regard to time or space.

The Army is constantly seeking to develop new and better management methods throughout its logistics system. Research to this end goes forward without pause day in and year out. Many of the most practical solutions and successful innovations now in use have come from within the Army itself as a result of its long experience in performing gigantic tasks, and from that rich store of experience can be expected to come further improvements. At the same time, management methods and ideas used in private industry are always under close scrutiny. The Army and the business world maintain very close liaison in order that they may mutually benefit as greatly in the future from new concepts and practices as they have in the past.

Effective 1 July—We're Moving

In order to bring you more and better information on management in the Armed Forces we're moving to the heart of Defense operations. As of 1 July we can be reached by mail at 1001 Vermont Ave., N.W., Washington 5, D.C. Telephone STerling 3-5400.



A Knowing Look

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Getting Neutrals off the Fence In Southeast Asia

Why It Is Important:

The total population of peoples *not* under Communist rule amounts to about 550,000,000 people, or approximately one-fourth of the human beings in the entire world. This figure includes the population of India which is outside the responsibility of the Pacific Command, but which has a great deal of influence on occurrences in other countries. It is no secret that the people of Southeast Asia are susceptible to Communism. Their living standards are low. Most of them exist in over-populated areas. Most of them are illiterate. All of them are bursting with a new-found spirit of nationalism; and, as most of them have been subject to white rule until recently, they are strongly anti-colonial—in many cases, anti-white.

How It Is Being Done:

The Pacific Command's secret weapon in this awesome, up-hill struggle to win these people to democracy is a strong arm and a warm heart. Primarily, it is concerned with building up strength against Communist infiltration, encroachment or attack, but every one of its 300,000 military personnel has been ordered into shirt sleeve diplomacy.

Here's Why:

"WHEN THE people know it is impossible for a Communist to break into their homes," says Free Virtnam's Premier Diem, "those who are still neutral will get off the fence and join us."

With modern techniques and weapons, the young anti-Communist armies of Southeast Asia will gradually mature. With such growth willl come national pride and stability. Admiral Stump's way of assisting that growth is with offers of military protection and the more permanent kind of assistance —aiding hundreds of doctors, engineers and technicians from Southeast Asia to be trained by military missions or in the United States. They will eventually bring that knowledge and perception of democracy back to Southeast Asia.

The Pacific Command is primarily military but much of it's time is spent on matters only remotely connected with war. Says Admiral Stump, "Communism must be fought with ideas as well as explosives. Many Asians are neutral in the cold war. We must let them know that we are out to help them be independent and that we don't want anything except their friendship."

Two examples illustrate Admiral Stump's two-fold policy of a strong arm and a warm heart.

Not too long ago, Chinese Communists, riding a wave of successes, began harassing our Far East air lanes, flying dangerously close to our unarmed transports and even attacking an American patrol plane.

From Pearl Harbor headquarters Admiral Stump radioed: "DON'T LOOK FOR TROUBLE BUT IF APPROACHED WITH HOSTILE INTENT, FIRE. DON'T WAIT TO GET YOUR HEADS BLOWN OFF."

The transmitter had hardly cooled when Communist fighters buzzed U. S. carrier planes south of Hong Kong. Navy pilots promptly fired and two Red planes hit the water.

Asia, used to American back-pedaling, was shaken. Headlines screamed war and Radio Peiping blustered and threatened. Eventually a calm settled and Red China began respecting International air lanes.

After the furor had died, Admiral Stump said, "I was not surprised because I am convinced that the only way to win respect and prevent wars is to be strong and let the Communists know it."

To illustrate what he means by "showing heart," Admiral Stump points to Lt. Col. Robert Carney, Jr., who was assigned to train Nationalist Marines in southern Formosa. Carney trained Marines, but he also took an active part in community affairs and sent his two children to a Chinese school. He spoke about his job and the American way of life to dozens of groups, went fishing and hunting with the Chinese. Mrs. Carney became fluent in Chinese and interested herself in local hospitals. At least three times weekly the Carneys entertained villagers, from plantation workers to businessmen. When Carney was re-assigned, the entire town turned out to wish him goodbye and good luck. The Carneys are still in contact with Formosan friends. "That's the way," says Admiral Stump, "to make real friends for the United States."

Government Inexperienced:

The majority of the countries of Southeast Asia are new republics. As far as their experience in government is concerned, some of them are trying to run before they learn how to crawl.

Although still undeveloped, the resources of Southeast Asia are vast. She has the raw materials which Japan needs for its economy. A surplus of rice, rubber, tin, and other minerals are among the prizes to be found there. Moreover, Southeast Asia provides a natural outlet for the inexpensive products that Japan manufactures and can use for barter.

With its great industrial capacity, it is essential that we keep Japan with the free world. Its population is increasing rapidly and unless it can trade, Japan cannot support

Based on information supplied by the office of Admiral Felix B. Stump Commander in Chief Pacific and United States Pacific Fleet

itself. It is only because of the resources we are pumping into Japan today that Japan is able to survive under present conditions.

But we can't sustain them indefinitely. A man whose children are starving will accept anything, even Communist slavery, for a bowl of rice. We will run a terrific risk insofar as Japan is concerned, if we do not keep Southeast Asia free.

But let us not forget that whereas Southeast Asia is important to Japan and the rest of the free world, it is also equally, or more, important to the Communist block. They are straining to obtain Southeast Asian resources, seaports, and manpower.

What Communism is Doing

Although there is actual shooting in Northern Laos and in the vicinity of the off-shore islands, the major Communist effort at the moment consists of propaganda and attempted economic penetration. Everywhere, especially through the Red Chinese, the Soviets are endeavoring to depict Americans as a race of greedy monsters. At the present time the Soviets are not using their military power. This is not because of humane reasons, but because the chances of defeating us in combat are less than fifty-fifty.

While the Communists are trying to keep us off balance with soothing lies and other cold war

Admiral Stump's Score Sheet

Free China:

A treaty between the United States and Free China pledges us to defend Formosa and the Pescadores. The President also has authority, voted by Congress, to defend the off-shore islands if he considers it necessary as part of the defense of Taiwan and Pongu. These islands, Matsu and Quemoy, are heavily defended by over 60,000 Nationalist Chinese troops.

Admiral Stump is frequently asked if Quemoy and Matsu are of military importance to the defense of Taiwan. His answer: "I can say that if a volcanic eruption were to destroy these islands, it probably would not hurt us too much. But at the present time the Chinese Nationalists are so committed to their defense, that to lose them would be to destroy the morale of the Chinese army and free Chinese people everywhere. There is no better way to destroy a people's will to resist aggression than to destroy their morale. Therefore, the islands certainly have a great military importance.

"At the present time I believe that if the United States would flatly announce they will defend these islands, the Communists would not dare attack them. However, the President of the United States has wisely said that whether or not we will defend them is a matter which he will decide at the time. He is keeping the Reds guessing.

"Chou En-Lai, the Chinese Communist foreign minister, told a neutral statesman with whom I talked that he could not plan what to do in the future because the Americans were absolutely unpredictable. We should continue to remain unpredictable to our enemy.

"Can we defend Taiwan or the off-shore islands? The answer is yes—we can defend any spot in the world against Communist aggression if we are willing to put forth the effort to do so."

Philippines:

The late President Magsaysay was elected on a platform of friendship with the United States. In general the Philippine people are tremendously pro-American, especially out in the country districts, in the Barrios. There are, however, a few selfish politicians in the Philippines, who in attacking the Magsaysay-founded policies, are also attacking the United States. They are deprecating our efforts to help the Filipinos both economically and militarily. Led by such people as Recto and Laurel, they are causing us some difficulty in our base rights negotiation.

There are still small groups of Communists left in the Philippines. However, Magsaysay was very successful in reducing the Huk menace until now there are only a few pockets left.

Our bases in the Philippines are of great importance to us. All Southeast Asia lost a great champion of freedom when Magsaysay died. We must do our utmost to help the Philippines take up the slack left by his absence.

Vietnam:

In the last year and a half American policy in Vietnam probably has been as successful as any place in the world. The gamble we took in backing President Diem has paid off. He has grown with the job. When he began, he was lacking in confidence and was rather timid; nevertheless, he began to take positive steps to strengthen his nation.

Against the advice and roadblocks set up by the French, he decided to attack the various independent and corrupt armies which had infested the country. Now, as a result of Diem's courage and persistence, there is in Vietnam only one army and that is the Vietnam nationalist army under the properly constituted republic. "We can derive much satisfaction from growing confidence of Diem, and the assurance and skill which he has increasingly manifested. Without United States aid, Diem could not have been successful."

Laos:

In the two northern provinces of Laos there are armed bands of Pathet Laos Communists. The little Laosian army which has to protect the country from these guerilla troops is completely inexperienced and ill-equipped.

"Although we do not have a formal military assistance group in Laos, we do have some representatives of the Pacific command who are endeavoring to advise the Laosians, and we are furnishing them some war materials to use against these Communist bands who are supplied by Red China through the Viet Minh."

Cambodia:

Along with Laos and Vietnam, Cambodia is one of the three states which formerly constituted French Indochina.

Cambodia is a very backward kingdom. We have installed a military assistance group which is endeavoring to render support and train an army of about 40,000.

Thailand:

In Thailand we have a strong United States military assistance group. During the past year and a half Thailand has taken a very prominent part in the SEATO organization. Their troubles are mainly concentrated on their northern and southern borders. On the north there is the Soviet-Thai autonomous republic whose citizens actually speak the same language as the Thais, but who are within the borders of Communist China. On the south there is quite a large Chinese overseas population who have been connected at times with the Communists in Malaya.

"However, we are very hopeful in Thailand. The army is growing stronger and they have a very strong police force which is approximately the same strength as their army. They seem to be very active with their anti-Communist work."

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tactics, they are preparing themselves for the day when they hope to conquer us with military power—if they can't win by other means.

The Soviets have studied World Wars I and II. They have seen how Japan, with the majority of her Army never defeated in major battle, was choked to death because Japan had lost her Navy and her trans-oceanic mobility. Superior naval power is a greater requirement for the United States today than it was in the past. Admiral Stump reports that 90% of the effective military power in the Pacific Command area is furnished by our Navy. Because of Asia's geographical position, the Navy must remain the dominant service there.

For instance, for every ton of cargo lifted by fast plane from the West Coast to Asia, four tons of gasoline must be placed along the route and at the destination by ship. Our overseas bases are possible only because the United States has the ability to supply them with sea transport protected by our Navy. Admiral Stump remembers an Air Commander at Kangnung, Korea, being asked if he could start an offensive on Monday. "Sure," he said, "I can start if the Navy arrives with our gas and bombs."

Since World War II the Russians have built more warships than all other countries combined. Their active fleet has 400 submarines to our 110 and 500 minecraft to our 114. They are acquiring a merchant marine at a furious pace. The Communists do not need a big navy for defense as we do—they occupy a solid land mass, and can survive without deep water commerce.

Conversely, the strong nations of the free world are separated by salt water, in some cases thousands of miles of it, and are dependent upon supplies and heavy materials that must be brought by ships across the seas. Whether or not atomic weapons are used, the free world cannot long survive if they lose the ability to transport cargoes across the ocean. The only purpose of a navy such as the Soviets are building must be to fulfill the hope that they may gain the strength to separate us from our Allies and from our bases overseas.

To protect ourselves in Southeast Asia we must continue to show a strong, if not stronger, Navy. The alternative is loss of another major, and possibly decisive, battle in the cold war with Communism.

New Ideas

Parts Cleaning System Improved

Reported by: U.S. Army, Europe (Schwasbisch Gmuend Ordnance Maintenance.

Improvement: Cleaning and Finishing of parts.

Date Installed: 1 October 1956.

Program Affected: Supply Distribution and Maintenance.

Background: Excessive time expenditures were observed in the deburring, wire brushing, buffing, and polishing of individual parts.

Before Improvement: Manual deburring; brushing parts with electrically driven wire brush; buffing and polishing machines. Each part must be handled individually.

After Improvement: A tumbling process is being used to remove burrs, rust, scale, carbon, grease and other surface irregularities from component parts and subassemblies. The new process entails the use of tumbling barrels of appropriate size and design; abrasive of suitable size and hardness; detergents for improved cleaning action, water in varying amounts depending on the item being processed.

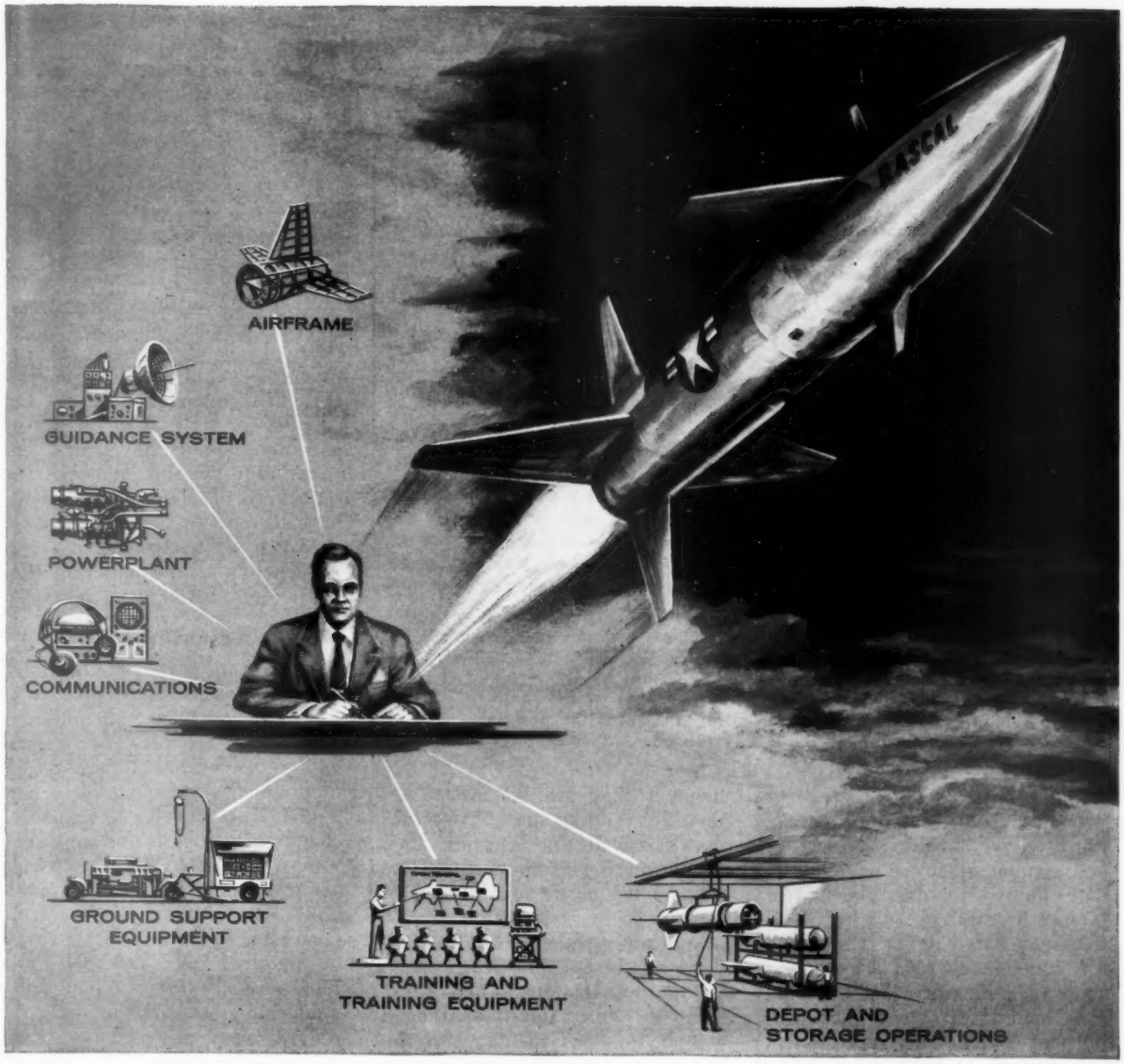
Gains: Estimated Annual Benefits: $14,513.

Management Techniques Used: Resulted from employee suggestion.

GPL Opens New Test Lab

A 23,200 square foot environmental test building was formally opened recently by General Precision Laboratory on its 69-acre property at Pleasantville, New York.

Under construction since April, 1956, the $450,000 structure increases the company's testing facilities for military and commercial electronic equipment by two and one-half times the former area.



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The air-to-surface GAM-63 "Rascal" of the USAF has already clearly demonstrated the capabilities of Bell Aircraft Corporation's ***Guided Missiles Division*** for the complete and highly efficient management of any weapon systems program.

This large and diversified team of specialists has the skills and experience necessary to follow a system through from the idea stage until it is operational. Each step — each phase is closely coordinated with time an ever essential consideration. Airframe, power plant and avionics are interrelated. Test and training devices, personnel training, ground support equipment and auxiliary systems follow in their proper sequence. The system comes into being under unified, centralized management — with dispatch and efficiency not possible in assembling component units which have been produced under a divided responsibility.

Some 100,000 man years of experience in this field have been logged by the men in the ***Guided Missiles Division.*** Their past is history worthy — their future important in our national defense.

BELL Aircraft CORP.

Guided Missiles Div.
BUFFALO, N. Y.

Ballistic Missile Logistics— A Forward Look

▸ In September 1955 the President of the United States approved a recommendation of the National Security Council to give the Intercontinental Ballistic Missile program the highest national priority. In the "crash" program which has followed, the big, bullet-like "birds," debated and planned behind closed doors for years, have at last emerged in outline as potentially the most powerful air weapons ever projected.

▸ The impact of this new species upon our air logistics system is already felt, though our effort is still in the development stage. Beyond doubt the ICBM is destined to become a major evolutionary force logistically as well as strategically speaking. Seldom in the past have we been afforded a similar opportunity to preview the shape of changes to come. We have with the ICBM an almost unique chance to mold logistical support to the weapon even as it is being born. We must do so if the full potential of these weapons is to be promptly realized. The challenge to our logistical management is to start tailoring a nest now to a bird that is still in the egg.

▸ This article is a brief and broad glimpse of the first step of that process. It is an analysis of why logistics for the "birds" must be different, and a definition of some of the problem areas which will be most radically affected.

THE ICBM imposes upon us logistical requirements distinct from those of manned aircraft—or any weapon which we have had to date—for two reasons. The first of these is the strategic role for which the weapon is cast. It is intended for immediate, reflex retaliation against attack upon areas of vital U.S. interest. To accomplish this purpose it must be kept poised, ready to strike infallibly, decisively, in the crucial opening phases of conflict. Our total functional inventory of the birds must be on its way to key strategic targets within a critically short time after the initial launch order. Ballistic missile materiel support must, therefore, be responsive to the needs of the operational user to a degree never yet experienced in our air logistics.

Secondly, the inherent nature of the weapons dictates a new order of logistical support. These will be big weapons, fixed and rooted in the complex ground environment of their launching sites until the moment they are blasted off on their arc through space. They cannot practically be shuttled back and forth for maintenance. They will be too costly and limited in number to be "laid off" for repair at a distance from the launch sites. They will be too complex for much on-the-spot maintenance. These will be more tightly packaged weapon systems than any of the manned aircraft which have determined our logistics to date. We must develop the means of supporting them on their own terms, with realistic recognition of the kind of weapons they are.

The influence of ballistic missiles is already strong, of course, in Air Force research and development functions and in the procurement area of our logistics system. One inevitable result is an intensification of the weapon system approach, particularly in the research and development phase. A new alignment of prime responsibilities has been necessary and newly integrated working relationships between contractors. To the working team of prime and sub-contractors has been added the concept of associate contractors. These have coequal "package" responsibilities for one or another of the specialized segments of the missile—propulsion and auxiliary power, airframe, guidance and control, or nose cone and warhead. In the procurement of manned aircraft the airframe has traditionally accounted for the bulk of the dollars and determined the "prime" responsibility within industry. The ratio shifts in missiles; the contents of the disposable container—power, guidance, warhead—assume a proportionately greater importance, as does ground handling environment.

Major Adjustment

This means a major adjustment of industrial relationships and of Air Force relations with industry. The changes are more fundamental and go deeper than a mere change of product, a retooling for a new model. They involve a significant change of emphasis and approach. The transposition from prime to associate contractor is, understandably, not always an easy one for a contractor to make. The Air Force, on the other hand, faces the absolute necessity for obtaining precisely integrated missiles with the utmost speed and economy. One major problem area of the immediate present is the establishment of long-range policies and practices which will make this practicable with the least possible disruption of industrial resources vital to the health and stability of the national economy.

The logistical functions of supply and maintenance, sharply differentiated for manned aircraft, will be more or less indivisible for the ballistic missile. In general, both functions will be simplified and greatly compressed. Depot maintenance, so vital for the maneuverable, round-trip weapon system, the aircraft, is impractical for these boxcar-size bullets which must be kept at the ready for firing from complex sites. Moreover, repair of the sensitive and complicated in-

By Major General W. F. McKee
Vice Commander, USAF,
Air Materiel Command

ternal works of these master missiles will require a degree of technical skill with which we cannot reasonably hope to man all operational launch sites. Therefore maintenance—and also supply—must be governed largely by the principle of component exchange. Regular go-no-go testing will indicate improper functioning of specific black boxes. For the most part, these will be removed as units and total replacement units will be grafted into the weapon on the spot. Repair of the components removed, whether it will eventually be accomplished at "rear area" depot facilities or at the original contractor's plant, will be more a job shop than an assembly line operation.

In the field of maintenance we foresee greatly increased emphasis on the mobile team type of activity —Mohommet going to the mountain. This will permit the most flexible use of premium technical skills, with minimum off-duty time for positioned missiles. Experience being gained now with mobile teams for emergency maintenance of combat-committed SAC, TAC and ADC aircraft is proving valuable in the development of mobile missile capabilities.

Speed and Control

The missile supply imperative can be summed up very briefly—speed and precise control, even beyond anything yet attempted. Replacement components for these weapons will be in the high value category. Routine use of airlift is inevitably indicated. We must also make a thorough study, and possibly some revision, of the property class system of categorizing supply items. It is extremely important that all missile components and hardware be clearly earmarked as highest priority to barrel through necessary supply channels with the green light all the way. These will be costly, critical weapons, and we cannot afford to have any item essential to their optimum performance lost, even momentarily, in the crowd of a million and a quarter stock items. Here also we must work within the concept of the tight package, the whole functional "bird."

An additional supply problem will be accurate computation of spares requirements. In the past we have been able to establish norms on a basis of flying hours of aircraft. Now we must set about determining how fast components will wear out just keeping the missile "warm," tested and poised to go.

Solution of this and a number of other problems which will arise can be facilitated if we succeed in skillfully pre-shaping another management area to the ballistic missile. That is the area of electronic data processing equipment and the communications linkage to fuse it into a single, integrated system. The hair-triggered timing and close supply margins of ICBM logistics mean a tightened reliance upon EDPE for precise, up-to-the-minute control of inventory. We must be able to put our hands on any item of this critical armory at all times. Furthermore, this capability must be as completely automatic, as impervious to chance variation and human error as possible. Data reduction centers, by weapon, appear to be the best bet to date.

We are fortunate that many of the technological advances which have made the intercontinental ballistic missile possible have also contributed to development of electronic systems capable of supporting it. Scientific advances do not always dovetail so neatly.

During the past five or six years we have acquired extensive experience in the application of EDPE to the management of manned weapon systems. We have a good foundation for the adjustment to the new weapons. Undeniably, a significant adjustment will have to be made. A regrouping of equipments will be necessary. Equipment under development will probably have to be slanted to specialized missile requirements. The general trend would appear to be toward a greater concentration of the larger systems at fewer points, and emphasis upon direct contact between launch sites and primary sources of supply. Serious thought must also be given to EDPE needs at squadron and group levels.

We must, of course, keep one broad management fact clearly in mind in looking ahead to support of the ballistic missile. The missiles

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will tremendously augment the striking power of our forces. But they cannot, within the immediate future, completely replace manned aircraft in our Air Force. Indeed, in addition to continuing combat and air defense needs, support of the ICBM itself generates a definite airlift requirement for both supply and maintenance. These great queen bees, assembled and operationally ready, nested in their launching sites are immobile, almost totally dependent upon other wings for quick sustenance.

Dual Logistics

Therefore, we must be prepared for a transition period of dual logistics for the support of two different breeds. And we must work to blend our resources into the most effective double-purpose, single system possible. This is the total challenge before us.

The logistical problems discussed here and many others incidental to the development of the intercontinental ballistic missile are now receiving the fullest study and consideration. Some solutions are already taking shape, being tested, as far as is practical, on the smaller, shorter range missiles already operational or in production.

In developing solutions for others, it appears that two management principles will be of particular importance. The first of these is long-range analysis and planning which must keep constantly before us new factors emerging from a fluid situation. The second is management by exception, which will focus concentrated management resources and efforts upon the rough spots as they develop.

By these means we intend to circumvent the traditional lag between a radically new weapon and the logistical system devised for its support. It is our purpose to have a new order of logistics, as ready to go as the weapon, when science and industry deliver to us the first intercontinental ballistic missiles.

* * *

Life Savers

Philadelphia Naval Shipyard saved $5,000 by repairing and overhauling rubber lifeboats. When boats are beyond economical repair the usable parts are cannibalized.

Airforce Contract To GE Division

The General Electric Company's Aircraft Gas Turbine Division has been awarded a $12,000,000 Air Force contract for engineering design studies to further improve the J79 jet engine.

Maj. Gen. E. W. Rawlings, commander of the Air Materiel Command, said the contract was part of an estimated $32,000,000 product improvement program for the engine.

The J79 powers the Convair B-58 Hustler, the Air Force's first supersonic bomber, the Lockheed F-104A Starfighter, the world's fastest production fighter, the Navy Grumman F11F-1F Tiger fighter, and the Regulus II ground-to-air missile.

Beech Colorado Operation To Full Division Status

Beech Aircraft Corporation of Wichita, Kansas today announced the elevation of its Boulder, Colorado operation to a full division status with R. B. Bosworth, a sixteen-year Beechcrafter, as manager.

Beech Aircraft's plans for the Boulder division call for complete integrated facilities for the research, development, testing and production of aircraft articles in specialized fields.

Bausch & Lomb Forms New Defense Division

Creation of a new Contract and Defense Products Division, of the Bausch & Lomb Optical Co., Rochester, N. Y., has been announced by A. K. Marsters, sales vice president.

The new distribution division will be responsible for specially-designed guided missile components and fire control systems for military and prime contractors; optical glass; products for the motion picture producing and exhibiting industry including CinemaScope, SuperCinephor and Baltar lenses; aerial and other photographic lenses, and photogrammetric equipment. It will be headed by Kenneth E. Reynolds, who has been with B&L since 1937 and is currently president of the American Society of Photogrammetry.

Greater Use Needed for Electrical Accounting

The Armed Forces should make greater use of electrical accounting machine facilities in the preparation of technical data.

That is the recommendation today of the National Security Industrial Association spares provisioning panel after a study of aircraft assembly, radar electronics, missiles, commercial electronics and the automotive area.

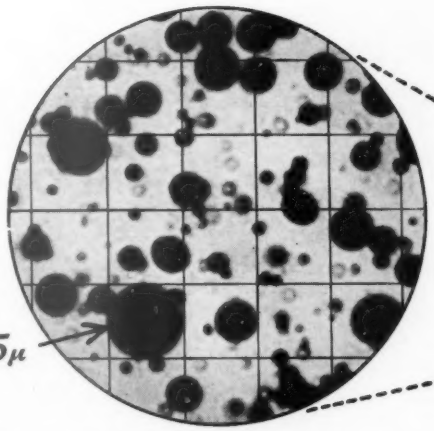
The study, undertaken at the request of the Department of Defense, emphasizes that "it is most important that government specifications recognize the use of mechanized equipment, thereby eliminating the need for requesting variations and deviations from specifications." The report says that mechanization can mean:

Speed, dollar savings, elimination of duplication, less paper, consistent and valid information, diversion of qualified personnel to decision making jobs rather than routine clerical jobs, the ability to make decisions by exceptions and visibility as to performance of the operation.

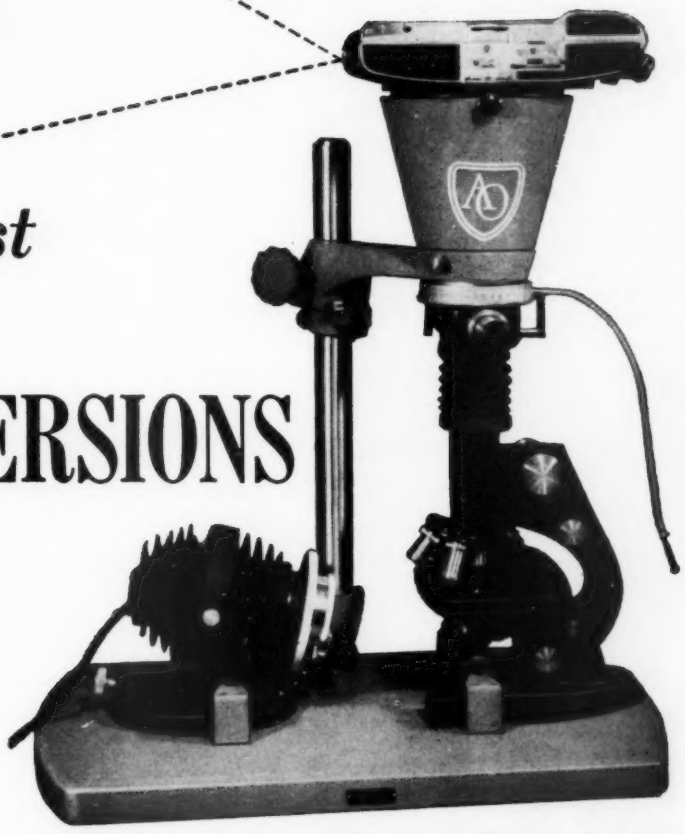
Commander Sets New World Record

A standard Aero COMMANDER 560-E twin-engine airplane has set a new world record for long distance non-stop flight. The flight was made by Miss Jerrie Cobb, who flew the *Commander* solo from Guatemala City to Oklahoma City.

Unofficial statistics set the flight at 1,522 miles, elapsed time 8 hours and 5 minutes, average speed 190 mph, and 197 gallons of fuel used out of the 223 gallons available. The old record for the 3,858-pound to 6,613-pound class airplane was 1,235 miles established by a Russian single-engine fighter plane.



Here's the *latest* on Lithium METAL DISPERSIONS



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Got a catalyst problem?

Interest sparked by the discovery that lithium metal dispersions make unique polymerization catalysts (the polymerization of isoprene to a "natural" rubber) indicates a heretofore unexploited instrument of research.

Consequently, Lithium Corporation is now making available experimental quantities of dispersions of this highly reactive metal. These dispersions may be purchased in either mineral oil or a mineral oil-petrolatum combination as the dispersing medium. Dispersions in other media are available as special items. The "package" is obtainable in five sizes from 25 grams to 1 pound. Over 90% of the lithium metal particles have a diameter less than 25 microns.

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Canadian Air Force To Use Firebees

Ryan Firebee jet target drone missiles will be used by the Royal Canadian Air Force, it was disclosed, following completion of a 10-day conference between RCAF officials and Ryan Aeronautical Company representatives at the aircraft firm's San Diego headquarters.

The Canadian delegation, headed by Squadron Leader A. E. Falls, RCAF, conducted a spares provisioning conference to determine the type and quantity of spare parts required for maintenance of the speedy Firebees in military use.

An undisclosed number of KDA-1 model Firebees (similar to that used by the U. S. Navy) will be acquired by the RCAF. Dates of delivery were not revealed, nor were any other details of the drones' prospective assignments.

● The atomic weapon has established the requirement for great dispersal of ground forces both in offensive and defensive operations.

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Machine Accounting: How to do the Job With Less Manpower

ONE OF THE signs of good management is doing a job with less manpower. Thanks to the use of accounting machinery, the Statistical Services Section of headquarters for Pacific Division of the Military Air Transport Service is doing just this.

Stat Services for PACD is charged with responsibility for originating or monitoring something like 300 complex statistical reports each month. Some of these deal with the accounting for every line item of property in the division, some with personnel reports accounting daily for every military and civilian person within PACD, others with almost every phase of operation of an air route command division spanning half the world.

Of these reports, three out of five are required at higher headquarters. One out of every four is used within Pacific Division. The rest go to PACD wings in California, Hawaii, and Japan. To assure proper operations, these reports must be accurate, and must be on time.

Many of them are tremendously complex. Take the case of maintenance man-hours.

It requires a certain amount of ground maintenance to keep PACD's big Douglas C-124 Globemasters and Boeing C-97 Stratofreighters flying safely. Too much time spent on this indicates waste and inefficiency.

But accounting for every action performed by every one of the thousands of PACD ground maintenance men could be time-consuming. And the preparation and submission of periodic reports on this would take even more manhours.

IBM machine accounting has proven to be the answer. In the process it has relieved over 50 people in PACD wing maintenance organizations from having to compile and report this information manually.

Now a row of filing cabinets, holding 330,000 punched cards, keeps track of maintenance manhours. The statistics, brought to PACD Hq as pencilled forms, are translated into properly punched cards, verified, sorted, and collated, and then placed in a tabulator which reduces the punched, coded information into printed statistical tables.

When the reports are required at MATS Hq at Maryland's Andrews AFB, there is no need to use the mail forwarding the information from PACD Hq at Parks AFB in California. A transciever machine, hooked into a circuit which does double duty as a noncommercial telephone link, does the trick. Cards fed into the transciever at Parks are automatically and quickly reproduced on cards in the transciever at Andrews. These are, in turn, ready to place in a tabulator for transformation into printed form.

PACD Stat Services is made up of five inter-related sections: (1) Machine Accounting; (2) Personnel Accounting; (3) Operations and Materiel; (4) Transport Statistics; and (5) Reports Control. (1) is responsible for the IBM machines and is utilized by all other sections. (2) (3) and (4) work with statistical reports on their section title subjects. (5) is the department which keeps track of all the Stat Services reports, whether originating within division headquarters, or from subordinate units.

There are only about 60 persons in PACD Hq Stat Services, and only a handful in the Stat Services sections of the three wings. Between them they monitor and audit and prepare a staggering amount of raw figures into digestible reports. Without their services PACD and MATS would be deprived of essential management tools.

The various Stat Services organizations come under comptrollers office functions. The section at PACD Hq is headed by Major A. A. Ryan, and is a part of the office of Colonel T. R. Taylor, PACD Deputy Chief of Staff/Comptroller.

THE FLIGHT HEARD 'ROUND THE WORLD

Recently three B-52 bombers flew around the world in 45 hours and 19 minutes. They were only specks in the vastness of the sky, yet they were in voice-contact every mile of the way—with SAC headquarters in Omaha, with each other, with bases along the route and with the KC-97 tankers that refueled them in the air.

Their speed-of-light contact was the AN/ARC-21 liaison communications set in each of the ships. This is a long-range, pressurized, high-altitude airborne system, capable of world-wide communications. It may be operated by the pilot, so no radio operator is needed. It is characterized by minimum training requirements, simplified maintenance, high reliability, positive channel selection —with a choice of any 20 of 44,000 frequencies.

In this as in other ways, RCA serves our Nation's armed forces. RCA scientists and engineers are constantly creating, designing and producing new and better electronic systems and equipment.

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DEFENSE ELECTRONIC PRODUCTS CAMDEN, N. J.

Professional Services

Plan *Your* Future Now . . . Here are the Opportunities . . . and their Locations

In this professional vacancy list published each month ARMED FORCES MANAGEMENT invites the listing of any position, *GS-9* or above. This cut-off point was established on the basis that GS-9 and above positions entail as a major portion of the duties management responsibilities. Space limitations in this Department will preclude so-called "wholesale listings". Apply direct to the installation where the vacancy exists. For information about other jobs, write or visit the nearest military installation.

Title and Location	Grade	Remarks
U.S. NAVAL PROVING GROUND		
Dahlgren, Va		
Statisticians	GS-9 to GS-12	3 vac.
Mathematicians	GS-9 to GS-12	6 vac.
Physicists	GS-9 to GS-12	6 vac.
Ordnance Engineers	GS-9 to GS-12	5 vac.
Mechanical Engineers	GS-9 to GS-12	4 vac.
Electronic Engineers	GS-9 to GS-12	4 vac.
Electronic Scientists	GS-9 to GS-12	3 vac.
U.S. NAVAL PERSONNEL RESEARCH FIELD ACTIVITY		
San Diego 52, California		
Occupational Analyst	GS-9 to GS-11	
Research Psychologist	GS-9 to GS-11	
U.S. NAVAL AIR STATION		
Columbus 19, Ohio		
General Engineer	GS-9	
Keesler Air Force Base, Mississippi		
Medical Officer (General-Supervisory)	GS-12	
Supervisory Mechanical Engineer (Heating)	GS-12	
Kirtland Air Force Base, New Mexico		
Electronic Engineer (General) (Instrumentation-Radio)	GS-12	
Electrical Engineer	GS-12	
Mechanical Engineer	GS-12	
Physicist	GS-12	
Research Psychologist (Experimental)	GS-12	
Aeronautical Development Engineer	GS-12	
Langley Air Force Base, Virginia		
Operations Analyst	GS-14	
Air Intelligence Specialist	GS-14	
Air Intelligence Specialist	GS-12	
Mechanical Engineer (Heating & Ventilation)	GS-12	
Norton Air Force Base, California		
Mathematical Statistician	GS-13	
Supervisory Systems Analyst	GS-12	
Supervisory Statistical Officer	GS-12	
Offutt Air Force Base, Nebraska		
Operations Analyst	GS-13	
Mathematician	GS-12	
O'Hare International Airport, Illinois		
Electrical Engineer	GS-12	
Patrick Air Force Base, Florida		
Mathematician	GS-13	
Randolph Air Force Base, Texas		
Biochemist	GS-12	
Management Analyst	GS-12	2 vac.
Selfridge Air Force Base, Michigan		
Chief Engineer (Maintenance)	GS-12	
Tinker Air Force Base, Oklahoma		
Medical Officer (General Medicine & Surgery)	GS-12	
Wright-Patterson Air Force Base, Ohio		
Supervisory Industrial Engineer	GS-13	
Actuary (Property)	GS-12	
Industrial Engineer	GS-12	
Industrial Specialist	GS-12	
Insurance Examiner (Fire & Casualty)	GS-12	
Structural Research Engineer	GS-12	
United States Air Force Academy, Colorado		
Research Psychologist (Personnel Measurement and Evaluation)	GS-13	
NEW YORK NAVAL SHIPYARD		
New York Naval Shipyard Naval Base, Brooklyn 1, N.Y.		
Supervisory General Engineer	GS-11	
Electrical Engineer	GS-9	
Mechanical Engineer	GS-9	
Electronics Engineers	GS-9	
Electronics Technicians	GS-9	
DECATUR SIGNAL DEPOT		
Decatur, Illinois		
Supervisory General Engineer	GS-10	
ARMY ELECTRONIC PROVING GROUND		
Fort Huachuca, Arizona		
Supervisory Electronic Engineer	GS-13	
Supervisory Electronic Engineer	GS-13	
Supervisory Electronic Engineer	GS-13	
Electronic Engineer	GS-13	
Electronic Engineer	GS-13	
Supervisory Electronic Scientist	GS-13	
Supervisory Electronic Engineer	GS-12	
Supervisory Electronic Engineer	GS-12	
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Electronic Engineer	GS-12	
Electronic Scientist	GS-12	
Electronic Scientist	GS-12	
Electronic Engineer	GS-11	
Electronic Engineer	GS-11	
Electronic Engineer	GS-11	
Supervisory Electronic Specialist	GS-11	
DISTRICT PUBLIC WORKS OFFICE, U.S. NAVAL STATION		
Seattle 99, Washington		
Sanitary Engineer	GS-11	
NAVY OVERSEAS EMPLOYMENT OFFICE (PACIFIC)		
45 Hyde Street, San Francisco 2, California		
Super. Personnel Officer Asst. Employment Superintendent	GS-10	
Medical Officer	GS-12	
Construction Management Engineer	GS-13	
Supervisory Management Analyst	GS-12	
Electronics Engineer	GS-12	
General, Civil, Mechanical & Electrical Engineers	GS-9 to GS-12	
Architect (General)	GS-9	
Personnel Officer (Industrial relations asst.)	GS-9	
Qualifications Examiner (Board Examiners Exp.)	GS-9	
Tabulation Equipment Supervisor (IBM Exp.)	GS-9	
Quarterman Engineman (Steam)	$7,945.60 per year	
Boilermaker	$2.73 per hour	
Central Office Repairman	$2.94 per hour	
Diesel Engine Mechanic	$2.73 per hour	
Electronics Mechanic (Teletype Exp.)	$2.82 per hour	
Gardener (Landscaping & Seeding Exp.)	$2.14 per hour	
Liquid Fuels Wharfman	$2.44 per hour	
Toolroom Mechanic	$2.63 per hour	
Water Plant Operator	$2.44 per hour	
NAVY OVERSEAS EMPLOYMENT OFFICE (ATLANTIC)		
Administration Bldg., 11th & M St., Washington 25, D.C.		
Electrical Engineer	GS-9	
Position Classifier	GS-9	
Civil Engineer	GS-11	
Position Classifier	GS-11	
General Supply Officer	GS-11	
Position Classifier	GS-11	
Management Analyst	GS-9 to GS-11	
U.S. NAVAL AIR STATION		
Jacksonville 12, Florida		
Aeronautical Engineer	GS-11	2 vac.
Supervisory Electrical Engineer	GS-11	
Electrical Engineer	GS-9	
Industrial Engineer	GS-9	
Mechanical Engineer	GS-9	2 vac.
Production Metallurgist (Physical)	GS-11	
Tool Engineer	GS-9	
U.S. NAVAL ORDNANCE PLANT		
Forest Park, Illinois		
Wage and Classification Specialist	GS-11	
U.S. NAVAL AIR STATION		
Corpus Christi, Texas		
Supervisory Management Analysis Officer	GS-12	

(*Continued on page* 48)

Creative Thinking: Your Greatest Asset Going to Waste

Are you an individual who is looking for some way to get more from life? Would you like to widen your horizons and enjoy an accomplishment you didn't know you had?

This sounds like a typical high pressure advertisement luring you to buy something. Actually these questions are a sincere attempt to have you spend a few minutes in reading time so that you may familiarize yourself with one of the most stimulating fields of endeavor—creative thinking.

FEW PEOPLE realize that one of the great differences between man and an animal is that man can use his creative imagination to improve his living standard. Everyone is born with an equally robust creative imagination. The evidence is indisputable. The unfortunate part is that for many this natural ability has suffered such abuse that it no longer functions as it was intended.

Why People Think Creatively

● Creative imagination within an individual thrives in an atmosphere of self-confidence, wanting the thrill of creating and practice. Despite the common belief that people who create do it primarily for money, a survey of people who make creativity a life's work shows that they do it for the satisfaction it offers them. They report that it gives them a sense of having done something worthwhile, some put it simply and say "I create for the thrill of it." Fortunately the world recognizes and rewards its truly creative people for without their efforts we would still be in the Dark Ages.

We live in a world of ideas. Nearly everything we use and enjoy started with an idea. The ideas conceived by a company's employes are among its most valuable assets. The ideas conceived by a nation's people pace the living standard, wealth and ultimate security of that nation. The ability of Americans to produce ideas in the face of any emergency condition may well establish the security of our country.

New Ideas Are Needed

● In our ever changing world picture there is a greater need and demand for people with ideas. We have people by the thousands who have capabilities for original thinking yet produce nothing.

Until recent years there has been no real effort to teach creativity in our universities nor any means to encourage people to think creatively. The picture is changing rapidly. We are learning that the creative imagination we enjoyed as children can be brought back. We're learning that age makes little difference, that extensive formal education is not necessary, that women are particularly gifted with creative imagination, that anyone who really wants to do creative work can do so by perseverance and enjoy it.

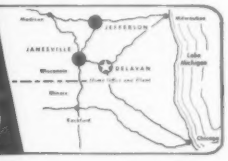
(Please turn the page)

By G. R. Eckstein
Research Associate, Remington Arms Company, Inc.

WHO IS BORG?

Borg is a highly respected name in its field . . . the manufacture of components for systems. Borg has gained wide recognition as a supplier of electronic components for military and commercial uses.

BORG PLANTS



Borg manufacturing plants are centrally located about 90 miles from Chicago. Easily accessible by highway, rail and air.

WHAT BORG MAKES

Precision Is Our Business. For many years Borg has been prominent in the design and manufacture of precision components for systems.

- **AIRCRAFT INSTRUMENTS**
  Aircraft components, instruments and electronic sub-assemblies.
- **FREQUENCY STANDARDS**
  Crystal controlled oscillator type frequency standards.
- **POTENTIOMETERS**
  Quantity production of Borg MICROPOTS (precision potentiometers) to meet your specifications.
- **MICRODIALS**
  Precision MICRODIALS for single and multi-turn devices. Indexed accuracy of up to one part in 1,000.
- **INSTRUMENT MOTORS**
  Precision motors, synchronous and induction types. Gear trains.

BORG CAN HELP YOU

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Universities are including courses of creativity in their curriculums, industry and the Armed Forces are including it in their training programs. Creative thinking as a subject to be taught is an amazing set of contradictions. Of all mankind's talents it would seem that creative thinking should be among those talents most commonly used—yet it is uncommon as a life's work.

As mentioned above—all children have a robust imagination yet our culture has done an excellent job of decimating creative imagination. We've learned how to restore the latent creative talent by very simple instruction yet people by their mental blocks and attitudes become their own worst enemies in learning such a magnificent accomplishment.

Anyone Can Create

We can say honestly that anyone who really wants to do creative work can learn to do it and become proficient with practice. We can go further and say that there are very few experiences in life which offer more thrill and satisfaction than doing a creative job.

You may say to yourself—"This I would like. I'll give it a whirl and see what happens." Before you go any further give yourself a break. Do it right, don't be your own worst enemy!

Here are a few do's.

1. Want to learn to think creatively sincerely and wholeheartedly. Expect to get a lot out of it. Look for the thrill of thinking out an idea that no other human has ever thought of.

2. Be prepared to take a little time each day to practice. It will be a little slow and difficult at first but with practice you'll lengthen your thinking time and tackle harder problems. Remember that an idea rarely comes "plop" into your mind. You must establish the atmosphere or rather you must coax an idea along until it reaches full bloom.

3. Look around you and recognize how many of the things you work with or enjoy in your leisure began with an idea. Go further and ask yourself if you would have put a little effort in thinking about these same things could you have created them.

There is one don't.

1. Don't be discouraged if you can't come up with a winning idea each time you try. Chalk up a non-winner to experience and try again. The more practice and ground work you establish, the better will be the idea and the result when some really important problem comes along.

Let's get down to the business end of how a mind conceives a new idea. It's so simple yet so magnificent. The mind is a storehouse of all sorts of memories. Every contact an individual makes with life, be it an experience, education, etc., through all of the five senses, bits of information are stored in the mind. Some contacts leave information more vividly recorded but nothing escapes completely.

Being able to recall bits of information, bit by bit, is the mental power, memory, so valuable in winning TV quiz programs.

It's Nothing Magic

There is nothing magic about the man with new ideas—he's the man who has trained himself to try all sorts of combinations of *simple* basic bits of information. It is the simple thing that is easiest to recall and in the long run it is the recombination of the simple things that solves most creative problems.

There are procedures to aid an individual in tackling any kind of a creative problem. There also are well-known pitfalls that confront an individual learning to think creatively. Much has been written in the field of original thinking, but the man who has fathered the sweep in modern education and training along creative lines is Mr. Alex F. Osborn. His book, Applied Imagination (Scribners), his Creative Education Foundation (non-profit) and his sponsoring of the annual conclave of creative thinkers, each year in Buffalo, has had a tremendous impact in awakening this country to its creative potential.

This article must necessarily be only the briefest of introductions to the subject. Further information on teaching, articles, etc., can be had for the asking from the Crea-

tive Education Foundation, 1614 Rand Building, Buffalo 3, N. Y.

One of the concepts taught by Osborn is very important and can be the correction of a mistake made by many people in their creative efforts. He contends that the mind should only do one function at a time for its most efficient use. When an individual is attempting to create a new idea then he should create wholeheartedly with no thought of criticizing his idea until it is full blown. Criticizing an idea at the same time it is trying to come to life is murderous. The individual who criticizes while creating finishes up with no ideas and no satisfaction of being a judge. Said simply, when you create, create; when you criticize, throw the book at it.

A Typical Mistake

A typical example of a person making a mistake is the fellow who comes up to you and says, "I've got an idea but it probably won't work anyway." Such an individual is handicapping himself so badly that it is doubtful if he will ever finish an idea.

The other extreme is the individual who is so excited when he gets an idea that he refuses to subject it to evaluation. Just because he thought of it, raised it from a pup, so to speak, it's automatically good.

Using modern techniques includes practical controls yet encourages the individual to think wild or unusual in order to get himself started. It is much easier to tone down a wild idea than to build up a poor idea.

The teaching of creativity includes encouraging the individual to have a lot of ideas, reams of them, before settling down on any particular one. With the costs of materials and labor skyrocketing, it is obvious that only the very best of ideas should be reduced to practice. Best of ideas usually turn out to be the simplest, cheapest and most practical in their reduction to practice. Producing a lot of ideas comes easily and rapidly to the individual who has trained himself to create and is enthusiastic for creative work.

Organizing the Method

Osborn offers a step by step approach for the individual to attack any kind of creative problem. With practice, the individual can rearrange the steps (or omit steps) to suit his own type of problems, but there can be little doubt that a designed approach to a creative problem is very effective. With continued practice, the individual doesn't recognize the steps he automatically uses. He responds to a stimulus and his mind whirls like a calculating machine.

One of the most important phases of creative work is selecting the right problem to be solved to produce the desired results. It is a common failing for the creative enthusiast to start his activity before he is sure he is working on the right problem. In defining the problem perhaps the best check that has been suggested comes from General Electric Company. They call it method X. Simply expressed, it is this: When you think you have stated the problem correctly stop and make this assumption: you know all the ideas, concepts, etc., to solve the problem as stated. Next, ask yourself: Now that I know how to solve this problem do I *really want* the answer. This leads into evaluating the solution for its overall value in such details as broadness of field, value economically, the simplest way, etc. Expressed differently, don't waste time working out a problem that isn't the best way to reach the ultimate goal.

Learning to express a creative problem correctly is half the problem solved, say the experts in the field.

Going on to the fun part is the phase, thinking up ideas. One of the sure-fire ways to start ideas coming is to use the three laws of association.

1. **What is it like?**
2. **What is it next to?**
3. **What is it unlike?**

They sound so simple to be of any value, yet to the individual that has a good handshaking acquaintance with them they can really stimulate action.

What They Mean

The first law tells you to recognize the similarity of your problem

(*Continued on page* 47)

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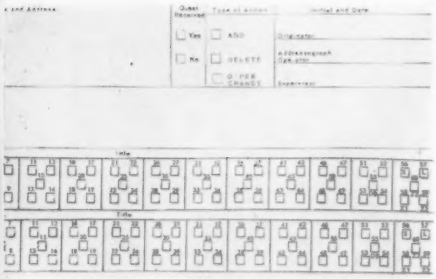
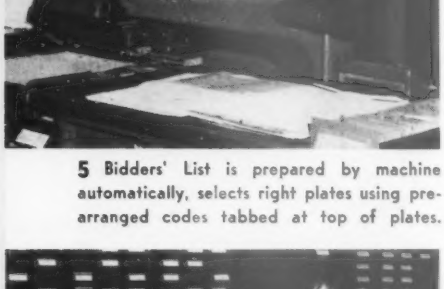


2 The Master Bidders Classification and Category Control card is addressed by mechanized means. It reflects a firm's interests as they appear on the materiel questionnaires. It provides the guide for tabbing and location of addressograph plates.

3 Tabbing contractor's materiel interests on addressograph—using master category control card and materiel questionnaire.

4 150,000 Signal Corps items reduced to 5000 categories within 114 main industry materiel classification. Classification addressograph plates are tabbed by categories for mechanized Bidders' List preparation.



5 Bidders' List is prepared by machine automatically, selects right plates using prearranged codes tabbed at top of plates.

6 Preparation of presolicitation card for each potential bidder on Bidders' List is run automatically on this machine.

Subject: TUBES

Company's Name, Address & Telephone No.

* Check (✓) interested spaces provided below.

Code No.	CATEGORY DESCRIPTION
1.	VA, Tubes, metal, receiving
2.	VB, Tubes, glass, receiving
3.	VC, Look in, receiving
4.	VD, miniature receiving
5.	VE, Acorn receiving
6.	VF, Low power transmitting 50 watts or less
7.	VG, High power transmitting over 50 watts
8.	VH, Forced air & water cooled
9.	VJ, Transmitting rectifiers
10.	VK, Special transmitting types
11.	VL, Thyratrons, velocity modulated H. F. diodes grid controlled rectifiers
12.	VM, Magnetrons
13.	VN, Lighthouse
14.	VO, Phototubes
15.	VP, Gas triodes & tetrodes
16.	VQ, Current regulators, voltage regulators, ballast, neon control indicator
17.	VR, Cathode ray, iconoscopes orthicons
18.	VS, Spark gaps, TR & ATR boxes, switches, relays
19.	VT, Special subminiature
20.	VU, miscellaneous (unclassified) (special)
21.	VV, Crystal Rectifiers
22.	VW, Ignitrons
23	VX, Counter, Geiger Mueller (Radio Activity)
	NOTE: Misrepresentation of material facts amounting to fraud will be deemed cause for deberment from this Agency's Bidders' List in accordance with ASPR 1-303.
	NOTE: If also interested in Thermal-Resistors please call for Resistors Questionnaire.
	NOTE: If interested in Transistors please call for Semi-Conductor Devices Questionnaire.

SA-SC Form 1 Dec 1952 870 Page 1 of 1 Pages

1 The electron tube questionnaire reduced thousands of electron tubes to 23 general categories of materiel for Bidders' List procurement.

How TASSA Used Mechanizatio to I

In the years immediately preceding the Korean conflict Signal Corps procurement was decentralized, tedious and time-consuming. Interviews with contractors required long hours by trained and experienced executives. Correspondence and phone calls from business firms seeking knowledge on how to do business with the Signal Corps was growing. Decentralized control did not provide the specialized effort and talent needed to maintain an efficient up-to-date Bidders' List and related system. Contractors had to visit too many offices. They left with a feeling of insecurity. The challenge was there—and met —by mechanizing the Bidders' List system and its related functions under a central control.

By Christopher Chanako
Supervising procurement analyst, The Army Signal Supply Agency

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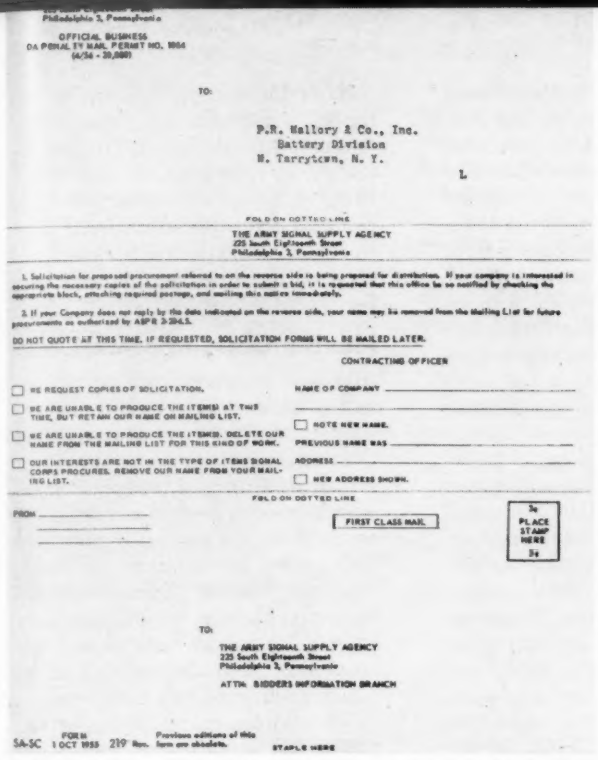


Philadelphia 3, Pennsylvania

OFFICIAL BUSINESS
PENALTY MAIL, PERMIT NO. 1954

TO:

P.R. Mallory & Co., Inc.
Battery Division
N. Tarrytown, N. Y.

FOLD ON DOTTED LINE

THE ARMY SIGNAL SUPPLY AGENCY
225 South Eighteenth Street
Philadelphia 3, Pennsylvania

1. Solicitation for proposed procurement referred to on the reverse side is being prepared for distribution. If your company is interested in securing the necessary copies of the solicitation in order to submit a bid, it is requested that this office be so notified by checking the appropriate block, attaching required postage, and mailing this notice immediately.

2. If your Company does not reply by the date indicated on the reverse side, your name may be removed from the mailing List for future procurements as authorized by ASPR 3-204.5.

DO NOT QUOTE AT THIS TIME. IF REQUESTED, SOLICITATION FORMS WILL BE MAILED LATER.

CONTRACTING OFFICER

☐ WE REQUEST COPIES OF SOLICITATION.

☐ WE ARE UNABLE TO PRODUCE THE ITEM(S) AT THIS TIME, BUT RETAIN OUR NAME ON MAILING LIST.

☐ WE ARE UNABLE TO PRODUCE THE ITEM(S). DELETE OUR NAME FROM THE MAILING LIST FOR THIS KIND OF WORK.

☐ OUR INTERESTS ARE NOT IN THE TYPE OF ITEMS SIGNAL CORPS PROCURES. REMOVE OUR NAME FROM YOUR MAILING LIST.

NAME OF COMPANY _____

☐ NOTE NEW NAME.

PREVIOUS NAME WAS _____

ADDRESS _____

☐ NEW ADDRESS SHOWN.

FOLD ON DOTTED LINE

FROM _____

FIRST CLASS MAIL

PLACE STAMP HERE

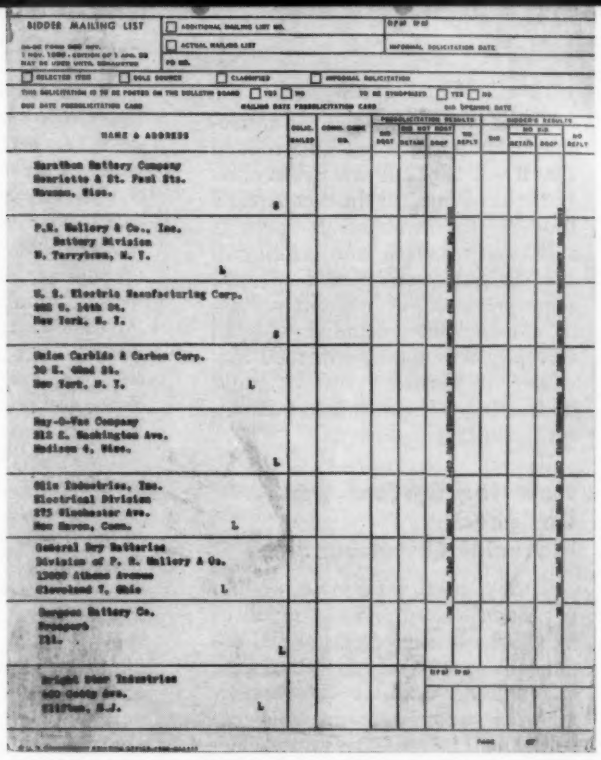
TO:

THE ARMY SIGNAL SUPPLY AGENCY
225 South Eighteenth Street
Philadelphia 3, Pennsylvania

ATTN: BIDDERS INFORMATION BRANCH

SA-SC FORM 1 OCT 1955 219 Rev. Previous editions of this form are obsolete. STAPLE HERE

7 Pre-solicitation card provides wide, economical survey of potential bidders, assures TASSA of adequacy of competition and lowers bid document reproduction costs.



BIDDER MAILING LIST

ADDITIONAL MAILING LIST NO.

ACTUAL MAILING LIST

INFORMAL SOLICITATION DATE

SELECTED ITEM ☐ SOLE SOURCE ☐ CLASSIFIED ☐ INFORMAL SOLICITATION

THIS SOLICITATION IS TO BE POSTED ON THE BULLETIN BOARD ☐ YES ☐ NO TO BE SYNOPSIZED ☐ YES ☐ NO

DUE DATE PRESOLICITATION CARD MAILING DATE PRESOLICITATION CARDS DUE OPENING DATE

NAME & ADDRESS	SOLIC. MAILED	COMM. CODE NO.	PRESOLICITATION REPLIES: DID NOT REPLY	DID NOT RETAIN	DROP	DID REPLY	BIDDER'S RESULTS: DID BID	RETAIN	DROP	DID NOT REPLY
Marathon Battery Company Henrietta & St. Paul Sts. Rhinelander, Wisc. S										
P.R. Mallory & Co., Inc. Battery Division N. Tarrytown, N. Y. L										
U. S. Electric Manufacturing Corp. 225 E. 14th St. New York, N. Y. S										
Union Carbide & Carbon Corp. 30 E. 42nd St. New York, N. Y. L										
Ray-O-Vac Company 212 E. Washington Ave. Madison 4, Wisc. L										
Olin Industries, Inc. Electrical Division 275 Winchester Ave. New Haven, Conn. L										
General Dry Batteries Division of P. R. Mallory & Co. 13000 Athens Avenue Cleveland 7, Ohio L										
Surgeon Battery Co. Prospect Ill. L										
Bright Star Industries 600 Cooke Ave. Clifton, N.J. L										

8 Bidders' Mailing List form is used to prepare bidders list for contracting officer and other Signal Corps offices which require it, also registers results of pre-solicitation cards and bid documents.

...to Improve its Bidder List System

THE MECHANIZATION of the Bidder's List had to meet current and future procurement objectives to satisfy industry and military needs. Preliminary to selection of the machines to be used, and the establishment of the required system, the objectives were listed.

For Industry

1. Assist industry in its preparation of a clear, concise, comprehensive, and economical presentation of its interests and qualifications.
2. Promote and assure small business participation.
3. Provide equitable, rotative and increased bid opportunites to all firms listed on the Bidders' List.
4. Gain greater participation of industry in SigC procurement through more accessible educative, advertising and service means.
5. Invite and include industry participation in the program prior to its initiation.
6. Reduce procurement lead time and thereby provide as much time as practicable for industry to receive, prepare and submit bids.
7. Promote means of making a firm's interests available and known to all contracting elements.

For the Agency:

1. Decrease the procurement time cycle through reductions in the need for: trained technical personnel in technical operations, terminology clarification, communications and paper work, number of flow channels, and number of records.
2. Provide methods for more economical and efficient procurement by expanding the list of potential suppliers.
3. Retain procurement experience for future use.
4. Dissemination of current procurement source data to guide contracting officers.
5. Integration with mobilization, research and development, and other procurement programs.
6. Increase competition among suppliers and, at the same time, reduce the Bidders' Lists.
7. Classification of contractors to satisfy government procurement programs such as small business participation.
8. Creation of a flexible system to meet local and far-flung procurement operations.
9. Establish maximum protection for records.

A study revealed that theoretically the 150,000 items in SigC procurement could be reduced to numbered materiel categories,

within industry classifications.

Trial tests with the Addressograph Model 1950 machine proved that it was versatile and could satisfy requirements for the mechanized bidders list system. It permits selection, rejection, and printing in the desired number of copies on appropriate forms without refiling of plates. When coupled with an auxiliary automatic form feed machine, it further permits rapid addressing of pre-solicitation inquiry cards to industry.

How the System was Designed . . . Materiel Questionnaires

TASSA used a tabulated listing of Signal Corps stock numbers to place all SigC items in homogeneous groups. Each group was assigned an industry category-of-materiel questionnaire. This resulted in 114 industry group classifications or Questionnaires such as metal fabrication, electron tubes, resistors, capacitors, electronic assembly, etc.

Study of all items within a given industry group was also made to reduce each questionnaire to a minimum number of categories of materiel. This resulted in reducing all metal fabricated products to 50 main categories of metal fabrication processes. Thousands of electron tubes were reduced to 23 general categories on the electron tube industry questionnaire. Finally a cross section of the industry involved was solicited to receive comments on the proposed questionnaire. Once completed, this project resulted in reducing 150,000 Signal Corps stock numbered items to 114 Industry Classification Questionnaires within which were a total of 5,000 general categories of materiel.

Master Classification Reference Book

An alphabetical listing of all categories shown on the questionnaire was also made, cross-referenced to Industry Classification Questionnaire Number and Category Number. It provided, among other functions, for ascertaining if a category has been previously procured by the SigC, and for selection of proper bidders lists by category numbers. Addressograph plates bearing the description of each category and applicable reference category number were prepared by Graphotype Machine. This file of category description plates was then printed on vellums by addressograph machine. Later it was reproduced into books for use by small business specialists, procurement analysts, and operating elements of the Agency.

There were approximately 30,000 contractors on the Bidders' List prior to its mechanization. Current maintenance of the Bidders' List depended upon information from contractors, and daily reports from operations. An addressograph mailing plate for each firm on the bidders list was initiated so that a letter to ascertain contractor's current name, address, and other data necessary to maintain current active status could be dispatched by mechanized means. The first mailing resulted in reduction of the Bidders' List to approximately 20,000 contractors. Subsequent mailing results (combined with a system for reduction of bidders by review of bid history results, to be described later) reduced the number of firms to the present approximately 15,000 active and current SigC contractors.

All contractors in active status were listed by addressograph on reproducible vellums to establish a contractors' active address book. The name, address, and classification of each firm by large or small business is listed. The contemplated addition of telephone number, name of person to contact, etc., will enhance the value of the book. The amount of mail returned due to inaccurate mailing, and the loss of time for contacting purposes have been minimized. Maintenance of this book on a weekly basis by the central control point keeps recipients informed of each firm's active status in connection with SigC procurement.

After the accomplishment of industry questionnaires, each firm was asked to reaffirm its current interests by checking off the numbered materiel categories on each classification questionnaire. The questionnaire allowed a broad review of all categories by each firm for complete listing.

Master Classification Card

When returned, the questionnaires were reviewed and the results posted on a Master Bidders Classification and Category Control card. This card, a replica of an addressograph plate, was addressed by mechanized means. It provided the guide for tabbing the contractor's interest from category numbers on the questionnaire to similar category-numbered tab spaces on the addressograph plate.

Completion of this task resulted in an addressograph plate for the answering firm in each classification tray; gave TASSA an alphabetical firm name sequence for rotation-of-mailing-list purposes, and a master control card file of the overall listing of each firm for maintenance, review, and analysis.

Master Procurement History Card

Signal Corps items are bought at many locations. In order to record the price and source information and make it available to all SigC procurement activities, a previous-procurement master card file was initiated. Using fast, economical Thermofax machine reproduction, the item price and history on all procurements by all SigC purchasing officers is registered, available for forwarding to any contracting officer.

Bid Pre-solicitation Begun

The mechanization of the Bidders' List opened up the avenue for wider and more economical solicitation of industry. A pre-printed card is now dispatched by addressograph machine to solicit contractor interest in receiving specific bid documents. Ten days are allowed for industry to check their interest and return the card. The card is pre-printed with a return address and is three-fold for mailing and return purposes. The system, by record over the past

two years, indicates that approximately one-third of the firms express affirmative interest in the initial inquiry. This allowed tripling the number of sources requested to bid and cut by two-thirds the loss in bid documents with drawings and specifications heretofore sent. This saving alone amounted to $338,509 during the period from May 1954 to October 1955.

Other advantages of the system include review of the initial solicitation inquiry results to assure adequacy of competition; justified accurate mailing of costly bid documents; and lower reproduction costs.

How the System Works

Establishment, maintenance, and processing the Bidders' Mailing List by mechanized means was placed under the central control of an operations analysis group comprised of engineering and procurement analysis personnel. After engineering review of procurement directives for completeness of procurement data, they are forwarded to the procurement analysis group.

The procurement directive bearing description of the item, the procurement data such as specifications and drawings, and the previous procurement price and history card are all now analyzed for preparation of the Bidders' Mailing List. The suppliers listed on drawings and procurement information sheets are jotted down. Possible research and development or mobilization plannings sources of supply are checked. All these specific sources of supply are coded with the reason for their inclusion on the Bidders' Mailing List for the procurement directive.

The above review and coordinated actions are now included with the classification category code number of the material being procured; the number being ascertained from a review of the nomenclature of the item; the major manufacturing processes, installation, purpose, and other governing elements of consideration.

The result is incorporated as instructions to the addressograph operator along with the number of sources desired on a work instruction sheet. The addressograph operator reads the codes on the work sheet and sets up the 1950 Model Addressograph machine for automatic selection of additional bidders. He ascertains from the rotation solicitation book the name of the last firm solicited under the materiel category number.

Bidders' Mailing List Form (see photo No. 8)

The addressograph machine selects and prints the number of sources required on a Bidders' Mailing List form. The firms listed are then scanned prior to the hand selecting and listing of the previous suppliers on the work sheet to avoid duplicate listings.

The addressograph operator then prints a pre-solicitation card for each firm listed on the Bidders' Mailing List form. The contracting officer reviews the Bidders' Mailing List and after his approval dispatches the pre-solicitation cards. The cards bear a short description of the item to be procured, for industry's review and reply by check in appropriate box allotted thereon.

The Wrap-up

In the interim, bid documents are prepared in required quantity to satisfy the expected affirmative replies. Results of the pre-solicitation card inquiry are recorded on the pre-solicitation-result portion of the Bidders' Mailing List Form.

The conversion of all SigC items into category numbers provided the basis for establishing a bid history record of each firm for each materiel category solicited. The category number, bid number, and result of bid opportunity for each firm on Bidders' Mailing List Form are typed by Flexowriter machine on a tape. This tape automatically prints additional strips for each firm solicited. The strips are filed by category number sequence under each firm's name in the Acme Visible File. Scanning of each firm's previous bid record is done while posting each firm's bid result. This procedure provides a continuous system for the Bidders' List reduction program.

The label portion of the Bidders' Mailing List Form is pasted to the envelopes containing the bid documents for mailing to firms who request the documents on the pre-solicitation card. Final results of the pre-solicitation card inquiry, and bid document solicitation for each firm are registered on the Bidders' Mailing List Form, in the columns provided, as the feeder for the contractor bid history record.

Results

The mechanization of the Bidders' List and its related functions has created better industrial relations; introduced mechanized procurement practices; substantially reduced operating costs and procurement lead time; made records fireproof and flexible in event of expanded procurement or emergency; provides for current and future studies based on data stored on machine; permits immediate implementation of Government programs such as small business participation and flood disaster area procurement; reduces technical personnel, training requirements; and finally can be applied at a later date to electronic data processing machines for even greater strides toward maximum efficiency and economy in SigC procurement.

Greater Use Seen for Electrical Control

Development of a new cathode ray tube to help meet some of the complex problems of airport traffic control was announced by Stromberg-Carlson, a division of General Dynamics Corporation.

Harold P. Field, manager of Stromberg-Carlson — San Diego, said the production model of the new tube, designated the INDICODER binary decoding tube, will have a one-and-one-half-inch square screen on which will be projected a numeral one inch high.

When a group of such tubes is used in combination, they will form an electronic display board which can keep current, detailed information on scores of aircraft in the vicinity of an airport. Manually, such a task is growing more and more difficult.

Equal Opportunities: How Fort Belvoir Fills Civilian Vacancies

THE PROMOTION program for Government employees about to be published by the Civil Service Commission is expected to be built around a requirement that all vacancies be given wide publicity, enabling all employees of a given agency to learn of vacancies within that agency.

In view of this, the experience of Fort Belvoir's Civilian Personnel Office in the development and operation of a program based on such a requirement, is worthy of note.

For a number of years conscientious efforts had been made at Belvoir to promote from within. During the period 1941-1945 the civilian work force increased several hundred percent, and it was possible because of the labor shortage to place all except a very few employees at their highest skill. The names of those few who were not so placed were noted by the interviewers and subsequently reassigned to their highest skills as suitable vacancies occurred.

After the cessation of hostilities, employment declined and opportunity for advancement decreased. It was necessary to devise some methodical means of bringing to the fore persons who should be considered for advancement by reason of length of service, potential ability and skill. A skills file had been established, but as it was found to be cumbersome and costly to maintain, it was discontinued. The simpler procedure of reviewing the Reduction in Force Retention Record for persons in the next lower grade in the same and related skills was instituted and followed for every vacancy. The Reduction in Force Retention Record is a record of the priority ranking of employees by skill used to determine who will be retained in a reduction of personnel. Virtually all promotions across organization lines were arranged through the use of this device. Unfortunately, it was so simple that no records resulted as a by-product, and neither inspectors nor the mass of employees realized that a methodical review of the work force was being made to bring deserving employees to the fore. Individual employees who benefited did not learn that their reassignments and promotions resulted from planned efforts of the Personnel Office.

It became apparent that a promotion plan, to be more than a mere statement of policy, had to contain three basic features: (1) a means of making known to the body of employees throughout the installation the vacant positions being filled, (2) a means of bringing to the attention of the placement officers of the Personnel Office the names of employees possessing the needed skills, and (3) a provision for notifying employees who are *considered* for reassignment and promotion, particularly those *not* selected. It was felt that criticism from employees caused by a feeling that they were not being considered for advancement would be largely dissipated by features one and three.

A plan embodying the three basic features was presented to operating officials in 1953. Major objections were confined largely to fear that delays in filling vacancies would result from the plan, and apprehension over feature number three above.

The fear of delays developing appeared to be a real one as Belvoir's several thousand employees work in hundreds of buildings scattered over a 10,000 acre area.

Agreement on the plan was finally reached and it was published essentially in the same form as proposed. All evidence available indicates that the plan is working, and that problems anticipated have failed to materialize.

Under the plan all vacancies are shown once on a vacancy list, published twice weekly. The vacancy list is kept on bulletin boards for three working days.

Any interested employee may apply at the Personnel Office for a vacancy for which he wants to be considered.

If he meets qualification requirements for the position, his name is entered on a Promotion List along with the names of the employees nominated by the Supervisor, if any, and the names of the four senior qualified employees in the same or related field of work at the next lower grade. Each declination and non-selection is recorded as one consideration. Only three considerations are given an employee during a twelve month period.

All persons who apply and all who are *not* selected are sent a notice that they have been considered for the vacancy. This is believed to be a vital step in the plan.

An existing record, DA Form 13, (RIF Retention Record) is utilized in determining the location of qualified persons from *the installation at large.*

This plan is not so all embracing that it could be called a career development plan. It does, however, provide a practical technique for recognizing the needs of the three types of employees who expect assistance in advancement: the employee who feels that his superior knowledge or skill should pave the way to advancement; the employee in the unit where the vacancy occurs who feels that he should be recognized because he is most familiar (and, therefore, best qualified) with the details of the position, and the senior employee, who feels that by reason of his service and experience he is entitled to the promotion. Each of these individuals must be given an opportunity.

The Supervisor, the man responsible for getting out production, evaluates the qualities of each and makes his selection.

**At the time this plan was developed, the author was Personnel Officer of the US Army Engineer Research and Development Laboratories and The Engineer Center, Ft. Belvoir. He currently is Executive Officer of the Laboratories.*

by Robert D. McMarlin

U. S. Army Engineer Research and Development Laboratories, CE, For Belvoir, Va.

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Business and Finance

How You Can Build for the Future—Through Mutual Funds

PART I

Last year more than 400,000 men and women started putting money aside for the future by purchasing shares of investment companies—known as mutual funds. And the majority of these people were taking their first step into the world of investments. In recent years we've all heard and read much about mutual funds—the investment medium that is making capitalists out of hundreds of thousands of average wage earners . . . now nearly 3 million of them. Just what are mutual funds . . . how do they operate . . . what are the advantages and disadvantages?

Reduced to its simplest terms, a mutual fund is an investment form in which many individuals pool their investment capital to gain the safety of diversification and the professional management that few of them could afford alone. The word "mutual" is a misnomer, as every fund is actually a capital stock corporation—not a mutual.

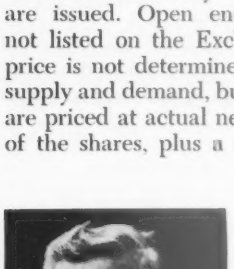
Open end mutual funds do not have a fixed number of shares. As more investors buy shares, more are issued. Open end funds are not listed on the Exchange. Their price is not determined by market supply and demand, but rather they are priced at actual net asset value of the shares, plus a sales charge. Net asset value of a share is the net asset value of the fund, divided by the number of shares outstanding. There is always a resale market, as the investment company must buy back shares at current net asset value. The "Bid" price of a share is the net asset value. The "Ask" price is the net asset value plus sales charge.

The principle of the open end fund is simple. You purchase shares of ownership of a fund. The money you invest is then added to the investment capital of the other shareholders of the fund and used to purchase the securities of many companies. You share in the earnings and growth of each of them. In this way, the risk inherent in any investment is minimized by spreading your capital among many investments. The fund management company has the responsibility of selecting the investments that go into the fund's "portfolio", or list of securities. Most management companies maintain a staff of skilled investment analysts whose sole function is the selection and supervision of these securities. These experts continually watch the securities in the portfolio, to see that they remain as strong and healthy as when they were selected. Securities are added or changed to keep pace with our ever-changing economic patterns.

Your earnings from a fund come in two ways: First, as the companies in the portfolio pay dividends, those dividends are collected by the management company and pooled. They are paid to you quarterly in proportion to the number of fund shares you own, after deduction of actual expenses. This type of dividends is called "ordinary income" or "investment income". The second type of payment to you comes from profits derived as the fund management sells portfolio securities. This profit is also pooled and paid out to shareholders. It is called "securities profits" or "capital gains dividends".

Most funds have elected, under Internal Revenue regulations, to distribute net dividends and securities profits to shareholders, so the money will not be taxable to the fund before reaching the investor. Since there is a small management fee—usually about ⅛ of 1% quarterly of the net asset value of the fund—the management company has an obligation to protect your capital and meet the investment objectives of the fund.

Each fund differs somewhat from every other fund in policies and method of operation. It is unlikely that you will ever find two mutual funds with exactly the same portfolio. For example, there are funds holding only bonds, with preservation of capital the principal goal. Another type, called a "balanced" fund, may contain bonds, preferred stocks and common stocks. The investment goal here may be primarily preservation of capital, with some earnings or growth. To provide greatest opportunity for earnings and growth, the majority of funds, including many balanced funds, concentrate on common stocks. Again, there are a number of types within this category. Some common stock funds hold only stocks from a particular country or a particular industry. Others specialize in a particular geographic area. And, as in any type of securities, you can find almost any degree of speculation you want. Some funds concentrate on capital growth, others on high current income. However, in this, and next month's article, we will confine our discussion to the type of fund most popular with Service personnel—the "middle of the road" fund, with a portfolio of high grade common stocks. The investment objective is both long term capital



by W. Mac Stewart
Vice president—Research, Hamilton Management Corp.

If you have any questions concerning investment funds which you would like to see answered, either in this series or by mail, please write Financial Editor, Armed Forces Management Magazine, 1001 Vermont Ave., N.W., Washington 5, D.C.

growth and current income, without sacrificing one for the other.

The portfolio of this type of fund contains many of the so-called "blue chip" companies, most of which are listed on the New York Stock Exchange, and have excellent past records of earnings and growth, as well as future prospects of both.

Where and how do you buy mutual fund shares? The law requires that fund shares be offered through a Prospectus, which must be presented to you by the salesman. That salesman may be from a securities dealer, as is the case with most funds, or he may be a representative of the sponsoring company. By studying the prospectus you learn the investment objectives and policies of the fund, the initial sales charge, the charge for reinvestment of dividends or for liquidation (if any), your rights and privileges, and other pertinent facts. In this way you can select a fund whose policies and investment goals coincide with yours—both in degree of speculation, and in the matter of seeking current earnings, long term growth, or both.

Most funds offer two methods of investing: by a lump sum (sometimes of as little as $100), and by periodic investments (sometimes as low as $10 per month).

Just as you pay a brokerage fee when you buy stocks through a dealer, so is there a sales charge on fund shares. A major difference is that the amount of sales charge is included in the offering price of fund shares. Sales charge may be any amount up to 9% of the total amount to be invested. However, the amount of the sales charge is a relatively unimportant factor. The test in selecting a fund is not the amount of sales charge, but the final results to you, the investor. Obviously, it costs money to distribute shares of any security, whether by advertising or by salesmen, and the nominal management fee is certainly not sufficient to cover all such costs. A fund that has little or no sales charge may make up part of those costs by a charge for liquidation, for reinvesting dividends, for handling each payment, or other means. When you buy a new car do you select it on the basis of performance, and value to you, or by the amount of commission the car dealer earns?

We have hit once-over-lightly on what a mutual fund is, types of funds, and cost of purchasing fund shares. Next month we will discuss the difference between various types of investment plans, and the advantages and disadvantages of mutual funds in comparison with other types of securities.

Wayne Pump Given Nike Elevating Job

The Wayne Pump Company, Salisbury, Maryland and Fort Wayne, Indiana, manufacturer of gasoline pumps, hydraulic lifts, air compressors and industrial products has recently been awarded contracts in the amount of $1,400,000 for Nike elevating equipment. To date Wayne has produced more industrial and military elevating equipment than any other manufacturer in the world.

Infrared May Replace Radar

Infrared may soon replace radar in many military applications, a General Electric missile engineer said recently.

Mr. Elton L. Bischoff, currently engaged in research and development of advanced detection and guidance systems with General Electric's Missile and Ordnance Systems Department, said that "infrared is developing to the point of becoming extremely useful for missile guidance and detection."

"Detection of Space Targets Beyond the Atmosphere" was the subject of Mr. Bischoff's talk. According to Bischoff, "Infrared is now being readied for advanced military applications and may ultimately be used as navigational aids to space flight."

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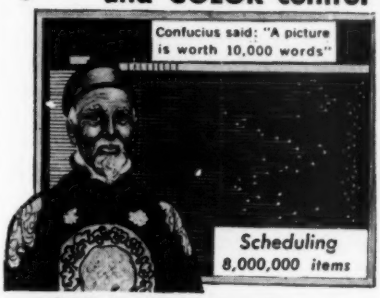

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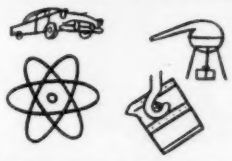

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Washington Management

▸ **Cordiner Committee** recommendations are not going to be thrown "overboard," says **Secretary of Defense Charles E. Wilson.**

Despite the fact that proposed pay legislation housed in the study has failed to clear the Bureau of the Budget, he said he is trying to "understand the temper" of what can be done during this session of Congress. Wilson conceded, however, that he's not as optimistic as he once was about getting a pay bill enacted this year.

▸ **The Distinguished Service Medal**—the Air Force's highest peacetime award—was granted to **Brigadier General Harley S. Jones,** retiring Deputy Director of Procurement and Production, at Headquarters, Air Materiel Command, recently. General Jones retired after more than 30 years active and reserve service.

He received the award from General E. W. Rawlings, Commander of AMC, before nearly a score of AMC generals assembled from throughout the United States.

▸ In a hunt for weather data, the **Navy** plans to fire a missile 60 miles into the atmosphere. If successful, the **HASP** (High Altitude Sounding Project) will add another 200,000 feet to the altitude already reached by a similar rocket in March. The tests are aimed at providing the Navy with a relatively small, inexpensive, easily handled vehicle with which wind and weather data can be obtained quickly from the upper atmosphere by ships at sea.

The missile uses a balloon for descent. Upon reaching its summit the rocket shell bursts open releasing a drop balloon and the packaged instruments. As it falls the package is tracked by radar.

▸ **The Northrop Snark SM-62**—the world's first intercontinental guided missile—will be a feature attraction of the **NATO exhibits** at the **Paris Air Show** at Le Bourget Airfield, reports the Air Force.

The exhibit will mark the first time an intercontinental missile has been placed on public display in Europe and the first display of the Snark global weapon outside the United States.

▸ **The Army** is studying plans for proficiency pay for up to 15 per cent of its enlisted personnel in grades E-4 to E-6 based on principles of the Cordiner Committee findings. The proficiency pay will be employed primarily in critical "hard skill" areas.

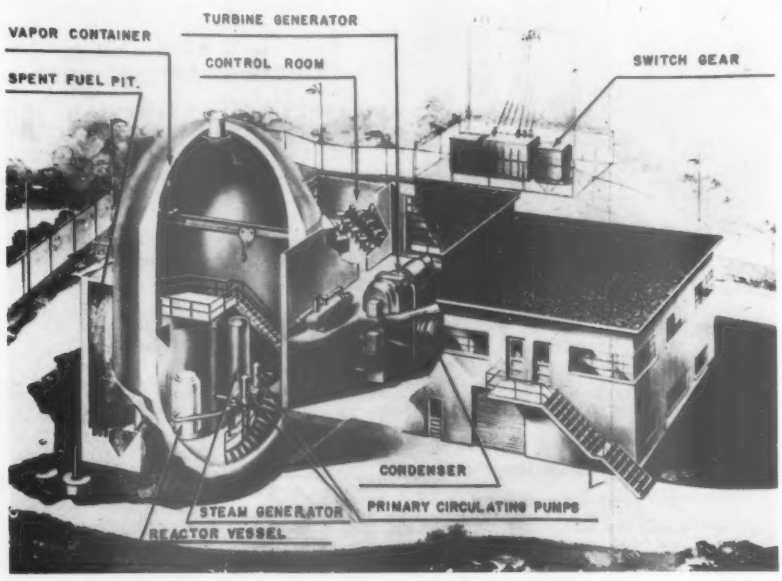
▸ **Secretary of the Army Wilber M. Brucker** has sent letters of commendation to three commanders whose organizations have received awards in the 13th annual competition of the American Public Relations Association.

The Army recorded an unprecedented first in the competitions this year. According to an official spokesman, this is the first time in the 13-year awards competition that any Service has won three awards in the same year. Award winners were the **Southern European Task Force, the Seventh Army, and the U. S. Army Infantry Center.**

▸ **Brigadier General Wilford F. Hall,** chief medical officer at Supreme Headquarters, Allied Powers, Europe, will become Surgeon of Air Materiel Command on the retirement of **Brigadier General Edward J. Tracy** late this summer.

▸ **The Army** has developed a new vehicle-mounted "coordinating center" that will give commanders instant control over dispersed tactical support elements in nuclear-age combat.

Dubbed **Tactical Support Center** or TSC, it was designed and built by the Signal Engineering Laboratories, Fort Monmouth. The TSC is housed in 13 vans and trucks. The Center has five major subdivisions: (1) control center, heart of the operation; (2) direct support aviation section; (3) electronic warfare section; (4) fire support or artillery section; and (5) air defense section.



▸ **AEC Chairman Lewis Strauss and Army Secretary Wilber Brucker** threw the switch of the **Army's first nuclear power reactor** for generating electricity during a dedication ceremony at the **Fort Belvoir Engineering Center** recently. (See cut). Following the dedication ceremonies, guests toured the plant, which is the first prototype of a series of reactors being built for military use.

▸ **The Army** is conducting a worldwide suggestion campaign. Nicknamed **"Project Paydirt,"** the campaign ends in July. During 1956, the Army saved more than $16,000,000 through creative suggestions of its military and civilian personnel. Suggestions poured in at the rate of 136 for every 1,000 men. "Project Paydirt" is the 1957 attempt to beat that record.

▸ **(ANS)** Secretary of the Army **Wilber M. Brucker** has announced a new small arms weapons system for combat forces.

Approval of plans to adopt a new standard rifle, which replaces four current shoulder weapons, rounds out the program, long planned and partly consummated with the recent adoption of the **M60 General Purpose Machine Gun.** Both the new rifle and the machine gun fire the 7.62mm cartridge, common to our NATO allies.

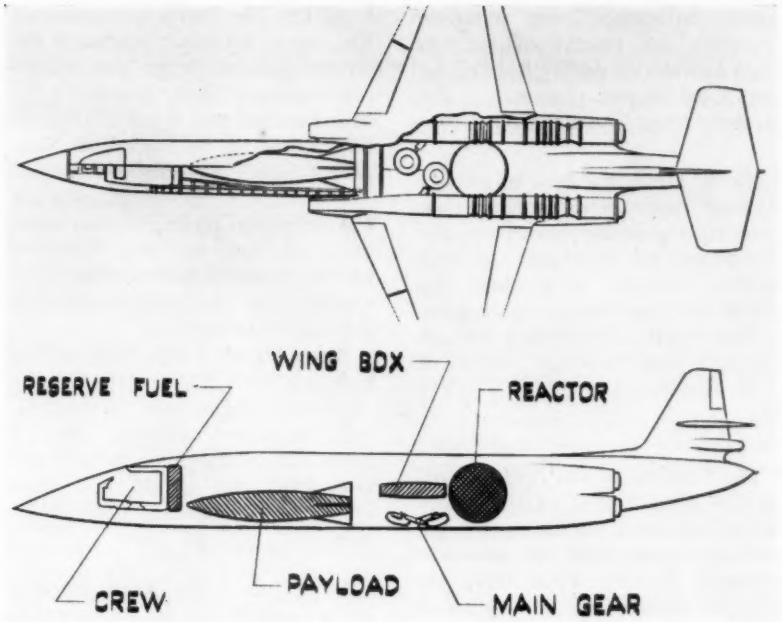
The new system offers many advantages. It gives the modern Army a better and lighter rifle and a lighter machine gun to give forward infantry units greater firepower. It cuts the number of weapons in the small arms system from seven to two (one machine gun and a rifle in two barrel versions). It simplifies handling and maintenance problems, reduces training time for the combat soldier, and cuts field logistics loads.

▸ **President Eisenhower** recently approved the appointment of **Lt. Gen. Thomas S. Power** to direct the **Strategic Air Command.**

General Power, Commander, Air Research and Development Command, will fill the gap left by the appointment of **Gen. Curtis E. LeMay** as Vice Chief of Staff.

▸ **(AFPS) Air Force Super-Sabre** jets, on a transoceanic flight commemorating the Atlantic crossing of the first colonial settlers, recently chalked up a historic mark of their own. Flying the same sea route from London to Jamestown taken by the English colonists 350 years ago, six F-100C's swooped over the Virginia city on the anniversary of the first North American settlement.

Three of the fighter-bombers peeled off and streaked for Los Angeles to set a 6,710-mile nonstop, long-distance record for single-engine jet planes. The TAC Super-Sabres flew from England to the West Coast in 13 hours, 54 minutes. They were refueled in flight three times.



Atomic Plane's Profile

Here, generally, is what the nuclear-powered airplane may look like when it is built for the U.S. Air Force. These drawings were made public by F. A. Cleveland of Marietta, Ga., and Clarence L. Johnson of Burbank, Calif., Lockheed scientists. Drawing at top shows the power plant inside the fuselage, instead of on the wings. The wings will be thin, clean, efficient. Drawing below, a side view, shows the crew compartment far removed from the atomic reactor. Feasibility of an atomic-powered plane becomes more a certainty, as scientists solve some of the difficult problems of protecting the crew from radiation.

▸ **The White Sands Proving Ground** physical plant may double in size in the next five years.

WSPG's long range planners have proposed some 179 projects costing $60 million for the next three fiscal years. However, past experience indicates it usually takes about five years to complete such an extensive program.

▸ **(AFPS) Flight tests** of the multi-jet **P-6M Martin SeaMaster** with a redesigned tail assembly, will be resumed this fall, **the Navy** has announced. The test program was halted last year after two of the experimental 600-mile-an-hour sea planes crashed.

▸ **The New Republic F-105B Thunderchief,** the latest fighter bomber to go into production, is scheduled to enter TAC's arsenal of nuclear carrying weapons systems, soon. The "Coke-bottle" fuselage contains one J-75 turbo-jet engine which its Pratt and Whitney makers call the most powerful engine of its kind in the world.

▸ **First public** display of a tilt wing **VTOL** (vertical take-off and landing) aircraft was held in **Washington, D.C.,** recently. The Vertol Model 76, powered by a Lycoming T53 gas turbine engine, is an Army-funded project, developed in cooperation with the Office of Naval Research.

▸ **At press time,** only one measure of the **Defense Department's** legislative proposals based on the **Cordiner Committee military pay** plan has been submitted to **Congress.**

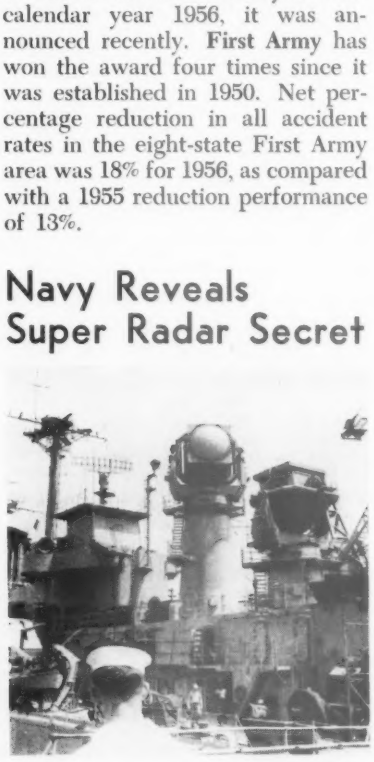
A Defense-sponsored bill which

would authorize "term retention contracts" for reserve officers has been introduced on Capitol Hill by **Rep. Carl Vinson,** chairman of the House Armed Services Committee.

▸ (AfPS) The lethal new long-range **Bomarc interceptor missile** has gone into quantity production, the **Air Force** has disclosed. A $7.1 million contract to produce the IM-99 Bomarc pilotless interceptor was awarded to the **Boeing Aircraft Co.** following "superior results" of tests conducted at **Patrick AFB, Fla.**

▸ **The First Army** has been awarded the Department of the **Army Award of Merit for Safety** for the calendar year 1956, it was announced recently. **First Army** has won the award four times since it was established in 1950. Net percentage reduction in all accident rates in the eight-state First Army area was 18% for 1956, as compared with a 1955 reduction performance of 13%.

Navy Reveals Super Radar Secret



▸ **A long secret class** of super radars, now in service with the fleet for guidance of its Terrier missiles, was revealed by the **Navy** recently. Resembling gigantic searchlights, massive, turret-like structures (see cut) include flexible modes of scanning the air space many miles beyond the horizon. Individual targets can be selected from close-flying groups and tracked at great distances while the missiles are launched and guided with "extreme accuracy." The system was developed by **Sperry Gyroscope Co.**

▸ **(AFPS) The Navy** is considering the use of helicopters aboard destroyer-class ships for anti-submarine warfare. Tests, involving the **Mitscher** and two types of helicopters, are being conducted off **Newport, R.I.,** the **Navy** has announced.

▸ **A television** pickup system using an aerial drone has been designed by the Army to aid combat commanders in obtaining immediate ground evaluation.

Army Signal Corps Engineering Lab scientists say results will be "instantaneous ground evaluation" with broad potentialities. Live TV shots can be made of tactical terrain from the drone and then broadcast to a ground control station.

▸ **As of July 1 the Army** stopped using postage stamps and adopted the new indicia for official mailing containers.

Still using existing stocks of franked envelopes, **the Navy** started a similar procedure last Oct.. 1; **the Marine Corps,** Jan. 1. **The Air Force** is said to be considering possible adoption of the system. Under the new system, the **Post Office** is reimbursed on a pre-negotiated basis rather than requiring postage pre-payment. While the new system will not necessarily cut the cost of mailing, it will save an inestimable number of man-hours in weighing mail, affixing postage, maintaining records, etc.

▸ **For whatever help** it may be to to the **Defense Department** in getting through the **Bureau of the Budget, Defense Secretary Wilson** is receiving the full, voiced support of the **Department of the Navy** and the **Chief of Naval Operations.**

Commenting on the **Cordiner Committee Report, Adm. Arleigh Burke,** CNO, said, "The Navy strongly supports the Cordiner Committee recommendations for solution of military manpower problems.

"Today's modern Navy," he added, "needs the services of more capable personnel than ever before. The committee's program to make military careers more attractive, to reward outstanding performance, and advanced skill is essential to keep us in step with the times."

▸ **(AFPS)** The **Air Force** has successfully tested a jet plane that can take off straight up, switch to high-speed flight, and land straight down on its tail.

The **Ryan X-13,** the new craft, has been under highly secret flight tests for more than a year. The X-13 gets its lift solely from the thrust of its 10,000 pound turbo-jet engine.

▸ **On 1 July** the Department of **the Army** redesignated its Career Management Division, Office of The Adjutant General to a new name—**Officers Assignment Division,** Office of the Adjutant General. The new name is intended to reflect more accurately the Division's primary mission: assignment of officers on an Army-wide basis. The Division's functions will remain the same.

Looking for $100?

Saying it needs short humorous anecdotes of Army Life, The Reader's Digest is inviting members of the Army to submit contributions for its well-known "Humor in Uniform" department. The magazine pays a flat $100 for each story accepted.

According to the magazine, contributions must be true, unpublished anecdotes based on service experience. They should be typewritten, double spaced, and not more than 300 words long. Contributions, it says, cannot be acknowledged or returned.

Army personnel should mail their anecdotes to Chief, Magazine and Book Branch, Office Chief of Information, Department of the Army, Washington 25, D. C., ATTENTION: Humor in Uniform Editor, Reader's Digest.

• • •

● Replacing the plexiglass in helmets and making repairs to protective suits is done during stand-by periods by the Fire Department crews at Naval Air Station, Seattle, Wash. Security personnel have been made individually responsible for the cleanliness and laundering of special clothing items such as leggings, pistol belts, holsters, cartridge containers, brassards and helmets. By putting maintenance on a personal basis all except normal wear has been eliminated.

How to Start Executive Development

DePaul University tried an intensive two-week course for the Air Force. Here are the results—

By
Thomas R. Masterson, with Kenneth K. Henning and William V. Haney
College of Commerce, De Paul University

THIS IS a report on an experimental course in Air Force Management. The planning of the course by Colonel Ford M. Monroe, Commander of the Chicago Air Reserve Center, and his staff and the Management Department of the College of Commerce, De Paul University, was completed in the Spring of 1956. The course commenced in mid-June and ran for two intensive weeks, eight hours per day, five days per week, totaling eighty hours.

Twenty-six Air Force reserve officers completed their two week tour of active duty in the classrooms, libraries and workrooms of the university. The class was composed of one second lieutenant, five first lieutenants, eight captains, nine majors, and three lieutenant colonels.

Three full-time members of the university's faculty provided the instruction. They were Professors Kenneth K. Henning, Chairman, Management Department, Thomas Masterson, Management Department, and William V. Haney, Speech Department.

The curriculum centered around six major functional areas of the field of management. Beginning with an introductory session and ending with a final examination, these areas were studied in the following order:

Survey of organization and management
Human relations
Communication
Executive development
Individual development
Overview of the management field

This selection and arrangement of topics does not resemble any single course offered by the Management Department, although individually they are found in various course offerings. Rather, the arrangement reflects Air Force needs. Accordingly, the topics were divided among the instructors in such a way that Professor Henning covered the introductory, survey, individual development, and half of the overview, sections, Professor Haney handled the communication unit, and Professor Masterson the human relations and executive development fields, and half of the overview section.

Of the eighty hours available, sixty were devoted to classroom and workroom activities; lectures, demonstrations, case analyses, and several writing improvement projects designed to develop skills in using the concepts and principles of effective management. The remaining twenty hours were designated for library study. It soon appeared advisable to schedule the library period during the first and last hours of each day. Two hours per day, however, were quite inadequate for completing reading and writing assignments. Each officer found himself burning considerable "midnight oil"—an experience some had not had in perhaps twenty years!

The sixty hours of classroom and workroom work were divided among the six functional areas of Air Force Management as follows:[1]

Survey of organization and management.....two hours
Human relations.....fifteen hours
Communication .....eleven hours
Executive development .....sixteen hours
Individual development ....ten hours
Overview of management..two hours

[1]One hour each was allocated to an introductory session, a mid-term examination, a review period, and a final examination.

While these units were treated approximately in the order listed, care was taken to avoid pursuing one topic more than two hours without interpolation of another topic as relief. This policy was based on the premise that excessive continuous instruction on a single subject may lead to a learning-saturation. The topics were allocated among the three instructors with regard to the special qualifications of each.

A basic purpose of the course was to further the development of promising personnel for positions of Air Force Management. The first meeting of the course was calculated to assure the officers that the resources of the University as well as those of the Air Force were co-

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ordinated toward this objective. To this end, Owen J. Quigley, C.M., Dean of the College of Commerce, and Major Aloysius Mankowski, Director of Training, Air Reserve Center, addressed the first meeting.

To implement this objective efforts were explicitly made to assist the officers, many of whom were full-time civilian managers, to transfer their administrative experience and *expertise* back and forth between public and private fields of endeavor. Sources in both private and public management were drawn upon freely. To illustrate, the Air Force publication on suggestion systems could be used as advantageously as a writing on the subject from industrial management.[1] Similarly, readings were assigned from the Air Force's *The Management Process*[2] as well as standard texts from the private sector of the economy.[3]

Further, it was with this end in mind that the theme of skill transference was incorporated specifically and systematically into one unit—Overview of Management—rather than treated as an incidental to other topics. Achieving this objective was also facilitated by the combined backgrounds of the instructors, in that Professor Henning is an Air Force reserve officer and graduate of the Air Command and Staff School. In addition, Professor Masterson received his doctorate in a field where private and public administration blend.

Finally, the examinations were designed to give the officers practise in exercising managerial techniques. The *rationale* here was that the reasoning processes underlying a managerial decision are usually at least as important as the decision itself. Also, learning to *use* the materials in a management course is enhanced by practise under controlled conditions.

One particularly interesting and creative aspect of the course warrants comment. It concerns an idea that appeared spontaneously shortly after the course started.

By the end of the first week it had become evident that the group was highly motivated, and was learning at a relatively rapid pace. (Another reason underlying this relative speed is found in the fact that all of the officers had much leadership experience. As a result, a good deal of the learning was simply a matter of formalizing and organizing experiential knowledge.) The instructors therefore conferred with the three lieutenant colonels who were flight leaders within the group, and it was decided to undertake a rather thought-provoking project.

Accordingly over the weekend the instructors prepared a committee assignment which was to be done by each of the three flights during their lunch hours and at such other times as they could find. Briefly, the assignment was to identify the factors that make the reenlistment problem of the U.S. Air Force very serious. They were then to formulate the relationships between this military problem and the solutions to the same problem —namely, keeping the best men "on the payroll," in the face of attractive offers from competitors—as worked out in private corporations. Finally, they were to recommend action.

The flight leaders were equipped with a selection of standard texts on conference leadership, the individual officers and the flights began to think about the problems, and rough drafts were written up. By Friday afternoon some clear ideas had been formulated, and these were put into organized outlines Friday night by the flight leaders.

The group had earlier voted to spend Saturday morning at the school working up their committee reports on this assignment, rather than at the Reserve Center. The Air Force cooperated by sending over to the school the personnel who processed the return of the students to reserve status.

Consequently, on Saturday morning the three flights, each of which had provided itself with a typewriter, were still working up their reports. Simultaneously each officer was being individually processed by Reserve Center personnel. Professors Henning and Masterson were present, but did not participate in the writing. By noon the reports were finished and the processing was over, and all but the Reserve Center personnel repaired to a nearby restaurant for a "commencement dinner."

In conclusion, it is believed that some potentially useful lessons were derived from this experiment. They are presented here for whatever value they may have.

The Management Department had been conducting approximately the same course for a different group of reserve officers on a "one night a week" basis at the Reserve Center. Early in 1956 the idea was conceived to aim for the same results on the "five full days a week for two weeks" basis described here in.

The instructors were skeptical at first. But the idea seemed to have enough essential merit to stay alive. The more we discussed it, among ourselves, with our colleagues, and with Colonel Monroe and his staff, the less convinced we became that the idea was *flatly* impossible to work out. It finally became a challenge.

The difficulties were formidable, however. Note that six hours a day were to be spent in class. At the university level this is considered to be excessive, except under highly unusual conditions. But by planning the schedule to ensure variety both in subject matter and in teaching methods, we tried to minimize this difficulty.

Second, the materials are abstractions from experience. Further, they are abstracted from one of the most complex of all fields of human activity, administrative management. "Overintellectualization" therefore became a danger to be avoided.

Third, a curriculum as varied as this is difficult to teach in a short

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[1]U.S. Air Force, 73% Untapped Potential: A Study of the Air Force Civilian Suggestion Program, (Washington: Headquarters, U.S.A.F., 1955)

[2]Department of the Air Force, A.F. Manual 25-1, 1954

[3]Most readings were taken from Principles of Management, by George R. Terry, (Homewood, Ill.: Richard D. Irwin, Inc., 1956). Also used were Harold Koontz and Cyril O'Donnell's Principles of Management, (New York: McGraw-Hill Book Co., 1955), B. B. Gardner and David Moore's Human Relations in Industry, (3rd ed. Homewood, Ill.: Richard D. Irwin, Inc., 1955), and C. E. Redfield, Communication In Management, Chicago: The University of Chicago Press, 1953). Other standard texts in management were used, but less extensively.

period. The learning process is not well understood, but on one point, at least, most observers agree. This point is that the *rate* of learning cannot be increased at will by the learner or the teacher, except within narrow limits. This objection in itself would have been insuperable had it not been known that these officers already possessed a good deal of experiential knowledge of leadership, one of the central concepts of management.

The difficulties were reduced to manageable scale by limiting the objective somewhat. What we finally aimed at, i.e., was to *start* the process of executive development, but to make the start as intensive as possible. Thus, it was believed, the individual officers could continue the process to fulfill their personal objectives and needs at their own pace and in a variety of ways.

To this end the student officers were given bibliographies and reading lists on several management topics and problem areas. Outlines of the materials in the several units were provided them for their later use and/or permanent files. Finally, their examination papers and writing improvement projects were corrected, evaluated, and returned—with instructors' comments and suggestions—for the officers' future use.

Was the experiment successful? A dynamic situation such as this precludes control of variables. Only the most tentative conclusions can be made.

From what we can determine everyone connected with the project felt it was worth the effort. The Air Force Reserve Center leaders, such as Colonel Monroe, who conceived the idea, the instructors who were fascinated and challenged daily by the enthusiasm and intelligence of a highly motivated group, and the officer students themselves—evidently all of us not only feel that the experience was worthwhile, but also are willing to repeat it.

● Lighting panels have been color coded at the U. S. Naval Hospital, Guam, to insure that only necessary lights are in use at all times. In one quarter $624 was saved—five per cent of the total electric bill.

Bendix Creates New Post For Military Sales

Charles D. Manhart has been appointed to the new position of staff director of military and government sales, it has been announced by Malcolm P. Ferguson, president of the Bendix Aviation Corporation.

Ferguson said the position was established "to expedite the company's overall planning and programming of complex interacting equipment required for modern weapons systems."

Reeves Builds Accelerometer

A specially designed "integrating accelerometer" is being built by the Dynamics Corporation of America subsidiary, Reeves Instrument Corporation, to "sense" and measure the speed of the Vanguard Launching Vehicle for an earth-circling satellite during its second and third phases. It is being built by Reeves for Air Associates and the Glenn L. Martin Co.

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Management Briefs from the Services

▸ **For a suggestion** which will save an estimated $11,592 annually, the **Seattle Army Terminal** presented one of its highest suggestion awards recently.

Ben C. Hanson, a foreman in the Plant Engineer Division, received $285 for a suggestion for installation of a refuse disposal system. Seven other employees shared a total of $620 for four adopted suggestions and outstanding performance of duty. **William Palmer,** administrative officer to the Terminal Commander, and **George J. Campbell,** employee in the Terminal Operations Division, each received $200 for outstanding performance of duty.

James E. Rasmussen, machinist in the Equipment Division, received $100 for devising tools from scrap steel for compressing strands of cable. His system saves an estimated $1,117 a year. Also on the list was **Duane J. Hall,** a Supply Division parts keeper, who was awarded $70 for a suggestion pertaining to the recapping of tires on general transportation administrative vehicles. His idea will save some $1,717 a year.

▸ **Want to buy** a cargo airline? In effect, this can be accomplished by purchase of eleven C-74 aircraft, together with their spare engines, parts, accessories, tires and equipment, being offered for sale by the Air Force. The planes can be purchased as a group or individually. The C-74s are in storage at **Davis-Monthan AFB, Ga.,** the parts at other installations across the country. Bids will be opened at Norton AFB, Calif., on July 10.

▸ **A new concept** for exchange service management was outlined recently. Officials of the **PX's and Army and Air Force** officers met in **Chicago** and drew up plans to have greater participation for direction of exchange affairs under control of military commanders. **Major General Harlan C. Parks,** Chief of the Exchange Service, said the functions of the five regional offices of the Exchange Service will remain basically the same. They will continue to render assistance in the technical aspects of exchange operation, including insurance, personnel, training, procurement, and merchandising.

▸ **Twenty-two persons** recently divided $1,985 in employee incentive awards according to word from **Air Materiel Command Headquarters.** Highest individual amounts—$300—went to two Dayton, Ohio, residents, **William E. Joers** and **Joseph S. Zahn.**

▸ **"Project Paydirt"** is paying off at the **USA Signal Training Center, Fort Gordon, Ga.** In the past 12 months approximately $120,000 has been saved at STC through the implementation of ideas from the suggestion system.

One of the latest STC award winners was **Mrs. Mary Ellen Long** who picked up her second suggestion check for an idea which resulted in the installation of a photocopy machine. Its use will save STC about $1500 a year.

▸ **One of the top** prizes for suggestions was snared this year by **H. E. Gibson,** an aircraft production specialist at **McClellan AFB.**

In addition to being named Sacramento area Suggester-of-the-Year recently, he has also received incentive awards totaling $1,000. His winning suggestion, a new method of replacing afterburner shrouds on F-94C jet aircraft, has already saved the Air Force some $385,000. In addition, his new plan saved an estimated 9,200 pounds of the highly critical metal, titanium, valued at around $118,000.

▸ **Col. Edwin Carey,** Commander, **Oxnard AFB, Calif.,** has a novel approach to the jet noise complaint problem.

Like any commander of a jet unit, Col. Carey has had his share of complaints about noise. High on his list, he found complaints by

(*Continued on page* 44)

Supersonic Jet Trainer Being Developed

This is the first detailed view of the USAF T-38 supersonic light weight jet trainer now under development by Northrop Aircraft. This artist's concept shows the raised seat in the rear cockpit enabling the instructor to check the student's movements and reactions. Indicating the supersonic capabilities of the T-38 is "coke bottle" or area rule configuration of the fuselage.

Mobile Towers Cut Cost

Reported by: Yuma Test Station, Yuma, Arizona.

Improvement: Mobile Observation Towers.

Date Installed: October, 1956.

Primary Program Affected: Research and Development.

Background: Testing of ammunition requires that observation towers be permanently constructed along a 40,000 yard range for observation of projectiles in flight.

Before Improvement: a. In areas where permanent towers are not located, observers had to observe from the ground. Due to the rough terrain, brush and nature of experimental rounds, the observers would lose track of the projectile and/or be unable to get good angles for triangulation requiring survey parties to run transit and tape traverses to each round in order to provide sufficient data for evaluation. In addition, several rounds were lost requiring search parties composed of 20 to 30 men and 10 to 15 vehicles to locate same. This system more than doubled the manhours required for obtaining and reducing data.

b. Six additional permanent towers were requested at the cost of $3,500.00 each, but due to the lack of funds, procurement was delayed.

After Improvement: A steel tower formerly used to support a water tank was modified and mounted on the bed of a 2½ ton, 6 x 6 truck to serve as a mobile tower approximately 18 feet high. A second tower was constructed from angle iron left over from previous tests, and mounted on a second 2½ ton, 6 x 6 truck. Using these mobile towers for areas not covered by permanent towers has increased the accuracy of the data and reduced the manhour requirement. Towers are removed from the trucks at the completion of each firing program, releasing the vehicles for other utilization.

Gains: a. With the construction of these mobile towers, the demands for six additional permanent towers were eliminated, at a savings of $3,500.00 each or $21,000.00. The cost of constructing the mobile units was $327.00 for both towers. This cost covered labor only as the materials were salvaged.

b. Estimate of additional benefits cannot be determined at this time. Manhour savings are being realized both in developing data and in the recovery of lost rounds.

Management Technique Used: Employee Suggestion.

J-75 Turbojet In Production

The Department of Defense and Pratt & Whitney Aircraft have revealed that the most powerful production turbojet engine known to exist in the free world is being manufactured at the engine company's main East Hartford, Connecticut, plant.

Leonard C. Mallet, general manager, said that the Pratt & Whitney Aircraft J-75 engine is in the 15,000-pound thrust class. Its power is further greatly augmented by use of an afterburner. The powerful engine is designed for supersonic speeds and represents a major performance advance in the jet engine field, Mr. Mallet said. The J-75 has already been announced as the powerplant for the Republic F-105 fighter type jet for the Air Force, and for production models of the Navy's Martin P6M water-based bomber. The engine will also power other Air Force and Navy high-performance aircraft that are classified. In addition, the J-75 is scheduled to power versions of the Boeing 707 and Douglas DC-8 commercial airliners.

New Missile To Navy

The Navy and Martin announced recently the new air-to-surface missile, the Bullpup, is currently undergoing Navy evaluation and will be introduced into the fleet as a service weapon.

The Bullpup missile is designed to be launched from any position outside the effective range of enemy high-volume ground fire and provide sufficient accuracy to destroy small targets without excessive sorties and expenditures of large quantities of bombs and rockets.

First Turbine Catapult Developed

A revolutionary new method of launching high-speed aircraft from short airfields currently being operated by the U. S. Marine Corps, was introduced at All American Engineering Company's test facilities in Georgetown, Delaware, when its spectacular turbo-catapult launched piston engine and jet aircraft from the world's first turbine powered catapult.

In a series of tests before U. S. Navy Bureau of Aeronautics observers, the Navy aircraft, boosted by the turbo-catapult, were launched into the air in less than one-fifth of their normal take-off runs.

Powered by six jet engines, the turbo-catapult develops 60,000 horsepower, or enough to supply electricity to a city of 50,000 people. But, despite this enormous power output, the jet power plant is expeditionary, that is, it can be dismantled with comparative ease, and transported by air to fields where it is needed.

FEATURE	SIG	2	3	4	FEATURE	SIG	2	3	4
1. Locking signal	Y				9. Accurate analysis locked signalling	Y			
2. Easily moved signal	Y				10. Pocket with wire and acetate lug	Y	Y	Y	
3. Protected pocket	Y	Y	Y	Y	11. Pocket lug riding on rail	Y			
4. Pocket tight to lug	Y	Y	Y	Y	12. Frictionless shift of pockets	Y			
5. Positive visibility	Y				13. Perfect layback of pockets	Y	Y		
6. Ease of insertion	Y				14. Roller suspension slide	Y			
7. Quality	Y				15. Group shifting of pockets	Y			
8. Price	Y				16. Greatest card capacity	Y			

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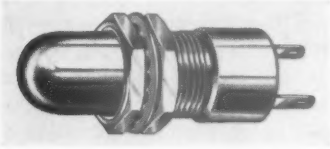
For more facts request No. 26 on reply card

NEW Dollar-Saving Products

PILOT LIGHT

Dialight Corp. This newly designed Dialco pilot light (see cut) provides, for the first time, a unit



that offers the dual advantage of ultra-compactness and the features of sub-miniature neon glow lamps. Drawing as little as 0.0002 amp., the lamp consumes about 0.04 watt of power, produces practically no heat, and has a long life—approximately 25,000 hours on the average.

For more facts request No. 1 on reply card

TUBELESS VOLTAGE REGULATOR

Superior Electric Co. The new STABILINE automatic voltage regulator type TM7105 provides maintenance-free automatic voltage regulation. Only a minimum of attention is needed because there are no tubes, transistors or moving parts in the assembly. Designed to provide a constant voltage despite line voltage or load changes, type TM7105 is especially useful for remote microwave relay stations and critical manufacturing process operations where the sudden need for tube, transistor or part replacement can be costly or impossible.

For more facts request No. 2 on reply card

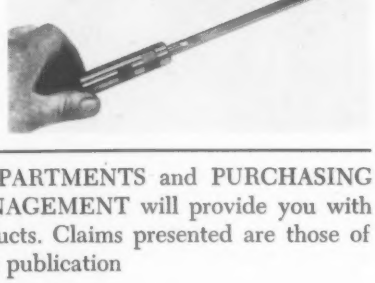
POWER STEERING ASSEMBLY

John Deere Industrial Div. Power steering—of patricular advantage in operating tractors when equipped with front-end loaders or other heavy front-mounted equipment—is the latest advancement in the John Deere line of industrial tractors and equipment. The new power steering assembly is available for factory or field installation on the "420" Utility and "420" Special Utility industrial tractors. It includes a hydraulic cylinder located between the tractor front-end support and a special heavy-duty steering arm.

For more facts request No. 3 on reply card

CARBIDE DRILL FOR PRECISION BLIND HOLES

Star Cutter Co. A new Starbore carbide drill (see cut), designed to produce precision holes from the solid in applications where a pin is not desirable is now available.



The tool is ideally adapted to the production of blind holes; holes that intersect cross holes, recess or cored areas; holes in laminated sections, and similar operations where pin disposal presents a problem.

For more facts request No. 4 on reply card

HEATING CONVERTERS

Drayer-Hanson. Available and being marketed internationally by this firm is a new line of packaged water chillers; 7½ h.p., thru 75 h.p. The equipment, designated D-H CWG, is engineered to convert either hot water or steam systems in existing structures to summer air conditioning. Key advantage is cost-saving factor of utilizing existing piping to pipe thru for the air conditioning cycle. Units are factory assembled, factory wired, and factory tested. Minimum field installation is stressed; only chilled water connections, condenser water connections and simple electrical connections required to make units operative.

For more facts request No. 5 on reply card

NEW LITERATURE

Burndy Corp. "What Goes on Here?", a new 8-page booklet illustrates and describes the manufacturer's OMATON Division products. In basic non-technical and conversational language, the booklet describes BURNDY connectors, terminals, splices, panels, and components for the OEM, Electronic, Appliance, Aircraft, and Military markets. Copies are available from the company.

For more facts request No. 6 on reply card

HYDRAULIC DRIVE PRINCIPALS OUTLINED

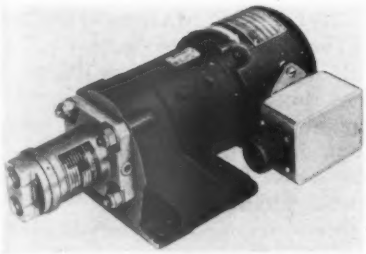
Allis-Chalmers Mfg. Co. Principals of the hydraulic torque converter drive which Allis-Chalmers pioneered for use in crawler tractors in 1940 are outlined in a new piece of literature (MS-1233) now available from the Construction Machinery Division. The new piece helps the reader translate torque converter drive features into work advantages with the help of action photographs showing Allis-Chalmers torque converter drive-equipped tractors on various types of jobs.

For more facts request No. 7 on reply card

As a service to OPERATING DEPARTMENTS and PURCHASING OFFICERS, ARMED FORCES MANAGEMENT will provide you with a selected list of manufacturers' products. Claims presented are those of the supplier and not necessarily of this publication

How to Use Armed Forces Management's Library—

Inserted in this issue, a postage free card is provided for your convenience in requesting descriptive and informative literature. This will be forwarded to you, without obligation. Many cost saving ideas are generated by Operating Departments that have referenced information on products available. Purchasing Officials will find this type of information invaluable. All that need be done is: fill in name and address, circle that which will assist you, and drop in the mail.



MINIATURIZED MOTORPUMP

Vickers, Inc. Continuing its program of miniaturizing aircraft components for missile application, Vickers announces a new line of miniaturized motorpumps. Model AA-19054 shown (see cut) delivers 0.84 gpm @ 7400 rpm and 1000 psi; the hydraulic pump weighs 1.0 lb. and the electric motor 7.0 lb. Overall length of both the pump and motor is 9 15/16 inches. Starting torque is less than 10% over maximum running torque. The high pump efficiency and low starting torque permit use of a smaller, lighter electric motor. The more efficient pump reduces current drain, and pump ability to operate at high speeds permits direct drive.

For more facts request No. 8 on reply card

NEW MULTIVERTER

Packard-Bell Computer Corp. A new multiverter produced by this firm is said to be the first commercially available analog-to-digital and digital-to-analog converter that is completely transistorized. According to Packard-Bell, the Multiverter is the first all-electronic device that permits multiplication and division in the process of conversion. It provides for high speed voltage to digital and digital to voltage conversions at accuracies of better than .01 per cent.

For more facts request No. 9 on reply card

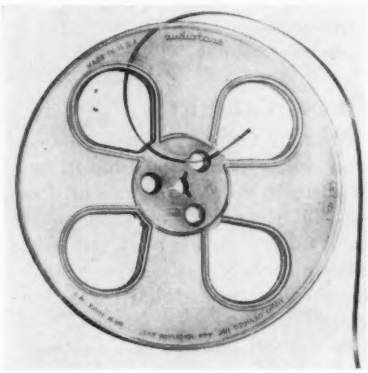
COIL LIFTERS

Lewis-Shepard Products, Inc. A complete line of hydraulic and electro-hydraulic coil lifters in a wide range of capacities is now available from Lewis-Shepard Products, Inc., producer of electric fork trucks and related materials handling equipment. Of all steel construction, each has a V-type deck to facilitate the handling and lifting of coils of varying sizes. All have four flanged wheels for operating on tracks.

For more facts request No. 10 on reply card

NEW MAGNETIC TAPE REEL

Audio Devices, Inc. A new reel for magnetic recording tape, the "fastest, easiest threading reel ever developed," is announced by Audio Devices, Inc. Called a C-Slot Reel, the unique design features a curved groove in the hub for threading. Tape is simply slipped into this groove in the opposite direction of reel rotation and the record is ready for operation (see cut). No kinks



or twists are made in the tape and no tape-ends are left sticking up. And, since the C-Slot is self-locking, there is no need to turn the reel by hand.

For more facts request No. 11 on reply card

POWER MACHINERY BOOKLET

J. I. Case Co. A new "tell-all" booklet has just been released by this firm describing and illustrating Case industrial equipment. It describes, among other things, the Case-Terratrac crawler-mounted, tractor-shovels, the only crawler-mounted tractor-shovels with counter-rotating Terramatic transmission, torque converter drive, torsion-bar track suspension and load equalization, automatic track lubrication.

For more facts request No. 12 on reply card

ELECTRIC STAPLER

The Staplex Co. The Staplex Automatic Electric Stapler is now available in pastel shades of Suntan, Mist Green, Dust Blue, Marine Grey, Coraltone, and Black. The color innovation is in keeping with today's trend toward more color in offices and office machinery. Designers report that pleasing tones improve morale and lessen fatigue factors. The machine itself works on a perfected solenoid principle—there is no motor to hum or to turn on or off . . . or to wear out. Stapler is completely automatic, driving staples as fast as the work is fed to it, both hands are free to feed work to the machine, there is no set time cycle . . . no lever or foot controls.

For more facts request No. 13 on reply card

HEAVY DUTY CASTER

The Colson Corp. A new heavy duty caster designed to meet military specifications has been announced. Manufactured by one of the country's leading makers of industrial and institutional casters and wheels, this 100-lb. capacity caster uses Colson's recently developed neoprene-bearing seals as the most effective method of protecting swivel and wheel bearings from steam, water, chemicals, dirt or other contaminants. (See cut). The caster has a four-position swivel lock for improved steering. It uses two 8 x 2½" moldon rubber tired wheels equipped with tapered

roller bearings. It is designed for heavy duty equipment, hand or power drawn.

For more facts request No. 14 on reply card

GROUND SUPPORT AIR CONDITIONING

C. G. Hokanson Co., Inc. New literature is available describing this firm's equipment for ground support air conditioning for aircraft and missiles. Whether for pre-flight, post-flight, maintenance, or "comfort conditioning" for operator efficiency, Hokanson units today are "tailoring atmosphere" for a star-studded list of craft which includes the Snark and ICBM missiles, the B-58 Hustler, the B-52, the RB/B-66, the "early warning" WV-3, and other classified aircraft still in development.

For more facts request No. 15 on reply card

POWER SUPPLIES

UAC Electronics. Small, rugged, transistorized power supplies for filament, transistor, and plate voltage applications are now commercially available. These compact units (see cut) for use in computers, guided missiles, telemetering and aircraft electronic equipment are as small and low cost as transformers alone. Standard units are transistor regulated within 5% and regulation is available in custom units to 0.1%. Conversion efficiency for unregulated units is as high as 98%. Temperature stability from –55C to 125C can be achieved. Units can be supplied to meet military specifications.

For more facts request No. 16 on reply card

MOTION PICTURE CAMERETTE

Houton Fearless. The Camerette, perfected in France after years of research, is living up to its name of being the world's most versatile motion picture system. Recently acquired by Houton Fearless Division of Color Corp. of America, it has been accepted and approved by military departments, major film studios, defense industries and by independent film producers, both in America and abroad. Available as 35 mm or 16/35 mm combination, the Camerette (see cut) is equipped with factory designed accessories that adapt the camera in seconds to practically any photographic need or requirement. It is equipped to record documentary, data recording, missile tracking, air to air, time lapse, X-ray cinematography, microphotography, and instrumentation analysis; can be remotely controlled with time or frame counter recording on film edges. These accessories eliminate the heretofore expensive redesign or modification usually needed by cameras to equip them for the various needs listed.

For more facts request No. 17 on reply card

FILING CABINETS

Wassell Organizations, Inc. Cut your office force filing time in half, save up to 40% in space with Corres-File. Revolutionary filing equipment takes your file clerk out of the laboring class and saves you 50 cents of every dollar you now spend.

For more facts request No. 18 on reply card

VISUAL MANAGEMENT CONTROL

Graphic Systems .This New York firm invites men interested in efficient management to get things done with Boardmaster Visual control which gives a graphic picture of operations, spotlighted in color, saves time, money, and stops errors.

For more facts request No. 19 on reply card

BELCO REPLACEMENT FAUCET STEMS

Miller Manufacturing Company. Leaking compression type faucets, lost water and excessive maintenance costs are gone forever with the installation of Belco ball bearing replacement stems, complete with bibb washers. The bibb washer is only under compression and is not subject to cutting or grinding action.

For more facts request No. 20 on reply card

COMMON STOCK INVESTMENT

Hamilton Management Corp. Through Hamilton Funds, Inc., a managed common stock investment fund, this firm offers lump sum or monthly investment plans to fit any budget. Interested persons can inquire without obligation. Firm recently declared another quarterly dividend.

For more facts request No. 21 on reply card

PREVENTIVE MAINTENANCE

The Tapecoat Company. A helpful folder is available from this firm featuring the company's complete line of coal tar coatings in tape form for protecting pipe, pipe joints, etc. Tape easily applied, no special training required.

For more facts request No. 22 on reply card

DATA PROCESSING

Wassell Organization, Inc. A revolutionary data processing visible master card or tape unit is available from this firm, a leader in providing effective tools for effective management. Find out why you should be using it, too.

For more facts request No. 23 on reply card

CHECKER WALL MOUNTED RACK

Vogel-Peterson Company. Hold more wraps in less space. Write for Bulletin CK455.

For more facts request No. 24 on reply card

MUTUAL INVESTMENTS

The Keystone Co. This firm has organized the Keystone Fund of Canada, Ltd., seeking long-term capital growth in the expanding Canadian economy. Prospectus available upon request.

For more facts request No. 25 on reply card

VISIBLE EQUIPMENT

Wassell Organization, Inc. There are 16 good reasons why you should be cutting costs and speeding efficiency with Sig-Na-Lok.

For more facts request No. 26 on reply card

CALCULATOR THAT PRINTS

Remington Rand. The "99" Calculator that prints automatically multiplies, divides, adds and subtracts in a smoothly flowing series of calculations—prints answers on tape for immediate proof of accuracy.

For more facts request No. 27 on reply card

VU-BOARD

Wassell Organization, Inc. To spot and prevent trouble in your organization, find out about this new, low cost, unlimited visual control board.

For more facts request No. 28 on reply card

VISUAL CONTROL BOARD

Wassell Organization, Inc. Produc-trol not only schedules but automatically checks with time, line, and color control, has low original and upkeep cost.

For more facts request No. 29 on reply card

New Id

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New Ideas:

USAF Speeds Message Sending

Reported by: Air Adjutant General, Hq USAF.

Improvement: Faster movement of official written communications between organizations and activities located on the same installation.

Field for Emphasis: Reduction of time that communications are in transit between action agencies; reduction in manpower and vehicles used to transmit communications.

Background: Usual procedure for intra-base distribution was to have a central distribution agency located in Adjutant's section of base headquarters. Each subordinate activity used its own vehicle and personnel to transport material to and from this activity.

After Improvement: The central distribution agency is put on wheels. This is accomplished by mounting a covered body containing distribution bins on a ½ ton pick-up truck. One man works in the body making distribution while the truck travels from point to point on the installation. Pick ups and deliveries are made according to a definite schedule, often as frequently as once each hour.

Gains:

1. Reduction in manpower and vehicle requirements by eliminating the requirement for each activity to use its own personnel and vehicle.

2. Savings effected in gasoline, oil and other items of vehicle maintenance.

3. Distribution procedures improved by faster transmission, more frequent pick ups and deliveries, and maintenance of a scheduled pick up and delivery service.

4. Reduction of transit time formerly required for correspondence to reach action agencies.

Management Techniques Used: Air Force postal inspectors report system now in use at several Air Force bases. Plans, SOPs and pictures obtained from various bases by Air Adjutant General and consolidated into one information package. Air Force Commanders have been advised that the information package is available on request. Information package may be obtained by other service commanders; requests should be sent to Air Adjutant General, Headquarters, United States Air Force, ATTN: Postal and Courier Services Group, Washington 25, D. C.

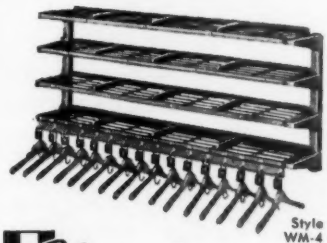
Shooting the Breeze

This experimental test model of a new Army weather gun literally shoots the breeze as it measures low altitude wind velocity. Officially designated the "Shooting Sphere Anemometer", it was built by the USA Signal Corps Engineering Labs. The private fires a small steel ball upward into the wind at an angle calculated to make the ball fall back upon the protective aluminum overhead shield. The gun's angle of tilt provides an accurate measure of wind velocity.

RCA Gets Air Force Standards Contract

The United States Air Force has awarded the Radio Corporation of America a product improvement contract under which RCA will develop industrywide design and reliability standards for various types of airborne electronic equipment, it was announced by Theodore A. Smith, Executive Vice-President, RCA Defense Electronic Products.

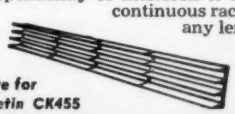
The USAF award, made by the Air Materiel Command, is a three-phase contract which also calls for utilization of new standards in the development by RCA of an improved UHF airborne communications system for USAF aircraft. The new communications system will be based on RCA's ARC-34 command communications set, a remotely-controlled, sub-miniature radio set widely used by the Air Force.



Style WM-4

Checker
WALL MOUNTED RACK

Hold More Wraps in Less Space. Standard in checkrooms. Also widely used as self-service racks in coffee shops, restaurants, meeting rooms—wherever people gather. Mount on any available wall space, even over floor obstructions, accommodate 4 or 5 persons per running foot. Provides each with a coat hanger and individual hat space. Keeps wraps aired, dry, "in-press." Come with or without numbers and checks. Strongly built of reinforced heavy gauge steel. Finished in baked enamel. 3'2", 4'2", 5'2" lengths. Mount independently or interlock to make continuous racks of any length.



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For more facts request No. 24 on reply card

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For more facts request No. 28 on reply card

News Briefs

(*Continued from page* 38)

mothers whose young children have been awakened by jets. When a mother calls, the colonel listens to her complaint, then suggests he would like to have her discuss the matter with the pilot of the plane that made the noise. If the mother is agreeable, an appointment is made and the pilot, in his best uniform, calls at the lady's home. He explains the mission of his base and command and tries to point out the need for jet operations in the local and national picture.

"Generally," concludes Col. Carey, "The Air Force can chalk up another friend."

▸ **M/Sgt. Robert Blessman** (left, see cut) received a Suggestion Award Certificate at **Fort Benning,**

Ga., recently. **Brig. Gen. John Ruggles** made the presentation in a special ceremony. Blessman's idea released four personnel spaces from the command's S-1 Section. This will result in annual savings of 8,352 man-hours and $16,640.

▸ **(AFPS) One of the year's largest joint Air Force-Army** airborne exercises was staged recently in the neighborhood of **Pope AFB and Ft. Bragg, N.C.** The purpose of the exercise was to deploy the aircraft to separate areas to avoid large concentrations of force that would be vulnerable to a single nuclear attack.

Involved in the exercise were 130 of the Tactical Air Command's 18th AF Troop Carrier aircraft and Army personnel from Ft. Bragg's 82nd Airborne Div., and the 101st Abn. Div., from Ft. Campbell, Ky.

▸ **The Marine Corps** has announced its second annual **NCO conference** will be held at Quantico, Va., July 8-13 .

The conference is held to obtain information on factors influencing reenlistments and career service from senior enlisted men. The Marines have established the meetings on an annual basis after the success of a similar conference last year, held at the request of the **Cordiner Committee.**

▸ **The U.S. Navy's** First Fleet—44 ships and 20,000 men—spent four days in mid-June in **San Francisco** following maneuvers off the California coast. The exercise, named "Operation Home Run," was the largest since World War II, the Navy said. During the four-day stopover, thousands of Bay Area residents responded to the fleet's invitation to come aboard for an "open house."

▸ **The world's greatest** peacetime display of naval power took place off **Hampton Roads, Va.,** during Fleet Week recently.

More than 80 warships of 27 nations participated in the first international naval review staged in the U.S. in 50 years. The review, held in connection with the Jamestown Festival commemorating the 350th anniversary of the settlement of Virginia, involved some 50 Atlantic Fleet ships.

▸ **Nine major maneuvers** and exercises are planned by the **Army** for the coming fiscal year, costing about $11.4 million.

Operation Gulf Stream will be the most expensive of the lot, costing about $4.3 million. It will be held at Ft. Polk, La., next April. Some 26,000 men from infantry and airborne divisions in the area will participate.

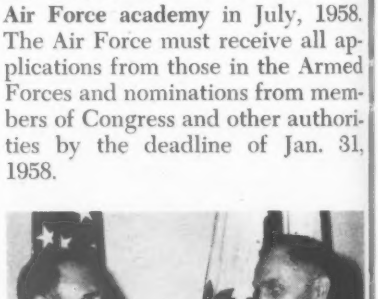
● The Army is developing a family of lightly armored carriers which can carry personnel, equipment, and supplies; can be used as weapons platforms, command, and reconnaissance vehicles; and can be lifted by medium assault and medium transport aircraft. They are amphibious, have cross-country mobility, and provide protection against small arms fire, fragmentation, and to the extent possible, the effects of atomic weapons.

Col. C. G. Gealta, Ass't. Comptroller, Sixth Army Hq., presents Norman Bader (right) with achievement award. Mrs. Bader also attended the informal ceremony.

▸ **Norman A. Bader,** Chief Management division, **Sixth U.S. Army** Comptroller Section, received $300 and the Department of the Army Performance Award Certificate at Presidio recently.

Bader, a member and past president of the **Armed Forces Management association,** was honored for sustained superior performance of his duties. Seven other Army civilian employees received awards ranging up to $200 at the same time for superior performance of their duties and time and money-saving suggestions.

▸ **(AFPS) Applications** are now being accepted for nomination to the cadet class that will enter the **Air Force academy** in July, 1958. The Air Force must receive all applications from those in the Armed Forces and nominations from members of Congress and other authorities by the deadline of Jan. 31, 1958.



Herman M. Seldin, a Lieut. Commander in the USCG reserve, is congratulated by Rear Admiral Henry Perkins, Commander of the Third Coast Guard District, on the former's election as President of the New York department of the Reserve Officer's association. Seldin is the first Coast Guard officer to attain this post.

▸ **USS Ticonderoga** recently completed a 12,000 mile trip "around the Horn" from Norfolk, Va., to Alameda, Calif.

The "Big Ti" is the first of two attack carriers being transferred from the Atlantic group to bolster the Pacific Fleet. A second carrier is expected in San Diego in the near future. The Ticonderoga was modernized, at a cost of $10 million, before making the trip. The trip via Cape Horn was necessary since ship reconstruction made Panama Canal passage impossible.

▸ **The U.S. Army Field Band** will give a Command Performance for the **Prince and Princess of Monaco** on the palace grounds during its 10 week goodwill tour of Europe this summer. According to an official spokesman, Rainer and the Princess have postponed their summer cruise to hear this unprecedented concert by the Army's only traveling band.

▸ **For the second** consecutive year, the **Army Ordnance Corps** has picked **Motorola** to participate in an executive development program for five senior officers who are preparing for top management assignments.

As part of a 21-month training program, the officers, all lieutenant colonels, are now studying management policies and techniques employed by Motorola. The program also includes study at the University of Chicago, as well as three-month assignments at four other Chicago area corporations and two three-month tours of duty at the Chicago Ordnance District.

▸ **Washington (AFPS)—NATO** fleet units of five nations recently held six-day Atlantic maneuvers between Gibraltar and the English Channel, **the Navy** has announced.

Involving ships and planes of the U.S., Britain, France, Portugal and the Netherlands, the exercise, called "Dawn Breeze II," included defense of a convoy against submarine and surface attack, offensive air maneuvers against underwater vessels, fast patrol-boat night attack and measures to counter atomic warfare.

NEWS and ACTIVITIES

Automation Problems Discussed

Great Salt Lake Chapter. At its most recently publicized meeting, 52 members and guests of the chapter heard Dr. William D. Stratford, dean of men and professor of psychology at Weber College, speak on the future of business in regard to the problems which evolve from automation. He also showed a new film released by Westinghouse entitled "Dawn's Early Light," which outlined the peacetime benefits being derived by the use of atomic energy.

It was also announced by Jerry Lesser, chairman of the membership committee, that six new members had joined since the last meeting.

✦

Incentive Awards Discussed

New York Chapter. The Program committee for this chapter suggested a round table on Incentive Awards be started as a study group to exchange ideas. Development of this plan and suggestions for other round table subjects were discussed at a recent meeting. Stan Wilcox, national coordinator of suggestion systems, Socony Mobil Company, was guest speaker at the meeting.

Election of new office-holders of the New York Chapter of the Armed Forces Management Association was held recently at the Brooklyn Army Terminal. Three civilian employees of the terminal were elected to offices. Mr. Meyer Kauffman, (seated), Incentive Awards Officer, Civilian Personnel Division, was elected President of the Chapter, and Miss Evelyn Chambers (right), Training Director of the Terminal, and Mr. John Bodnar (left), Supervisor, Printing Plant, Adjutant General Division, were elected as Members of the Board of Directors.

✦

Dramatize Parliamentary Procedure

Hawaii Chapter. A dramatized exercise to give actual practice and experience in parliamentary procedure was conducted by this chapter recently. Guided by Pete Kawaoka, management analyst, comptroller division, USABCOM, Hawaii, the program provided an opportunity through use of a prepared script for the chapter to cover various elements of parliamentary procedure.

✦

Logistics in Today's Air Force

Far East Chapter. Some 80 members and guests heard Major General William F. Hudnell, commander air materiel force, Pacific, speak recently on management from the viewpoint of a logistician.

Hudnell, in a large part father of the present-day logistics system of USAF, included in his discussion a graphic presentation of the present Air Force logistics set up in the Pacific together with a brief sketch of organizational duties at the several echelons.

The concept in the Air Force today is one of decentralization. From this is derived the AMC philosophy of getting operational functions into the field and as close to the actual operators as is feasible. In summary, it was noted that the whole concept is keyed to logistic support characterized by "on time with enough."

Commander Kerr of the membership committee stated, during the meeting, that the chapter now has 64 members, an increase of eleven over the previous month's enrollment.

Book Reviews

by D. D. Corrigan

Modern Spies

"THE ART OF SPYING," by Ronald Seth (Philosophical Library, 182 pages, $6.00).

Espionage and counter-espionage stories usually hold a strange fascination for the average person, and, "The Art of Spying," is indeed an exciting account of truth and suspense. Mr. Seth himself was a spy during the last war and thus knows his subject well. He elaborates on the cliche type of spy and explains the certain fundamental character-requirements which all spies must possess, but motives, temperament and qualities vary from one individual to another. He illustrates each of his reasons with case histories.

Alexander Foote is called, "The Inconspicuous Spy." He was an Englishman by birth who was known as Herr Albert Muller and Major Granatov of the Red Army. He drifted toward Communism and was a member of the Soviet Intelligence for almost ten years. His amazing exploits were based on an unassuming character, for he was a man of average intellect.

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Creative Thinking

(*Continued from page 23*)

to something else you've contacted before. Usually the problem can be broken down into bits—here a bit, there a bit, etc.—that you have seen, read about or done before; a new combination of old information and a new idea is born.

The second law continues a little further and says, if you do not have a recollection that fits your problem try changing dimension, weight, color, etc., to see if it brings associations. For example, you may have seen a piece of machinery that did the job you want to do but it was ten times bigger or one-tenth as big as the range of size you are considering. Rephrased, it means extend your thinking to take in the widest limits of every attribute concerning the idea you're striving for. There are standard check lists published to help thinking in using this law.

The third law is perhaps the most difficult to use but it is the most spectacular in results if successfully used. One of the common faults in individuals is that they tend to think alike. They usually think along the same lines that have been used before. One learns in creative work that if he is to be successful he must think differently. He must have different solutions, different ideas and different methods. The easiest way to be different is to imagine what a solution would be like if it were entirely unlike anything that has ever been used before. Expressed differently—don't be afraid to think backwards. Start with the exact opposite of what has been done and work back toward the accepted method until some point is reached where a better solution results than has ever been conceived. Frankly, the procedure takes practice but is intensely interesting and most productive.

All of your ideas won't be world beaters. Just because it is your idea and you have become real fond of it doesn't make it practical. Learn to do an honest evaluation on your work by using the eyes of the people you're trying to offer your idea to—ask yourself—if you were the buyer would the idea solve the overall problem and would it be the best solution.

With more experience the individual evaluates within his mind many ideas before he selects one that is outstanding. He builds up interest to stay with a problem until his solution answers all requirements unquestionably. He feels that his ideas are sound because they have withstood the tests (made creatively) that he has learned to apply to all of his ideas.

This article has been written to encourage individuals to create as individual thinkers. There is another equally important part of creative thinking devoted to individuals working in groups known as Brainstorming. Both parts are necessary for the utmost in creative results from an organization. It is recommended that for best results in Brainstorming, panel members should be competent thinkers trained to create as individuals.

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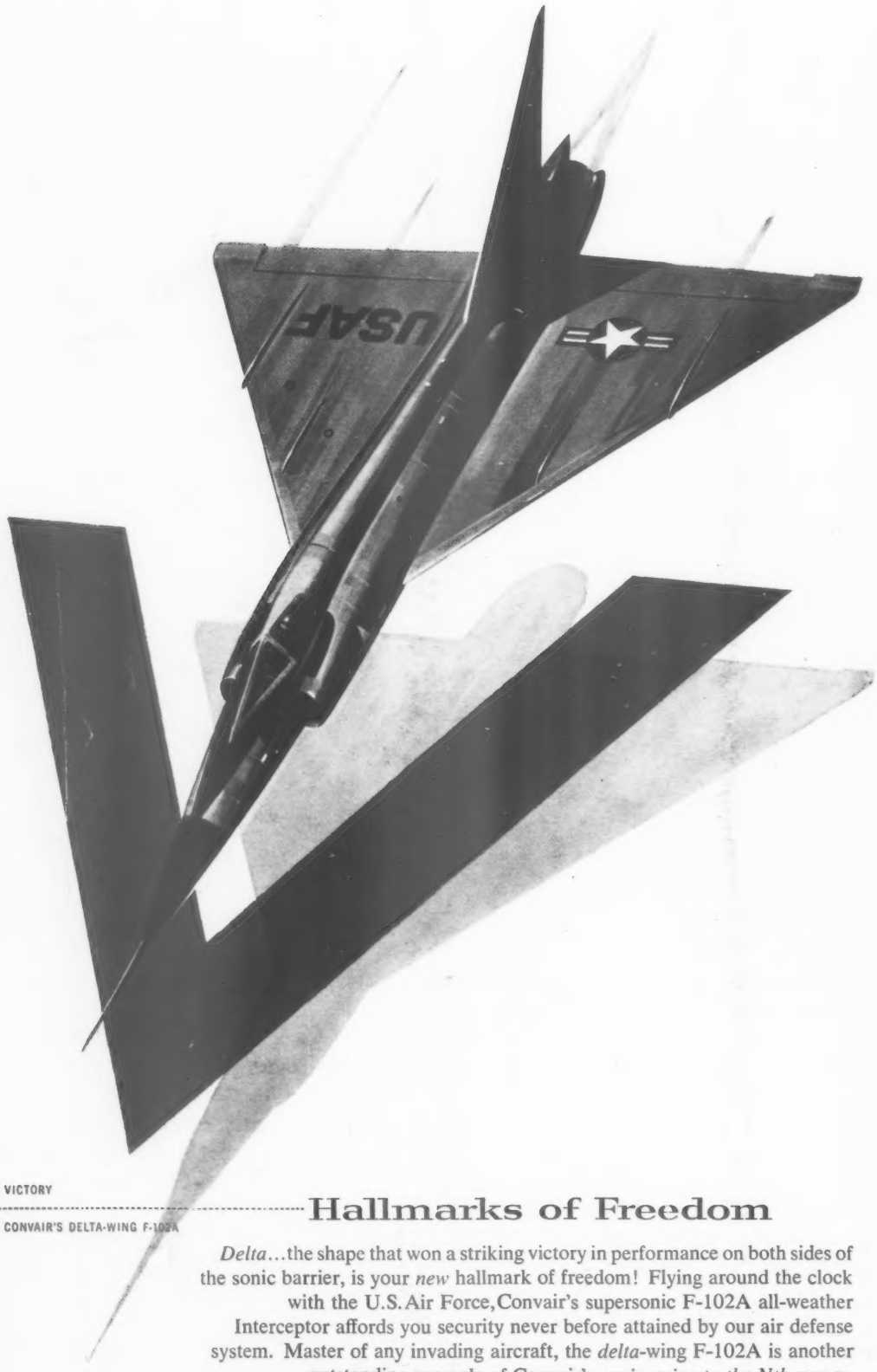

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